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PULP AND PAPER INVESTIGATION HEARINGS

ADDITIONAL FOREIGN STATISTICS

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WOOD PULP, PRINT PAPER, ETC.

DEPARTMENT OF COMMERCE AND LABOR,
BUREAU OF STATISTICS,
Washington, January 15, 1909.

Hon. J. R. MANN, M. C.,
House of Representatives, Washington, D. C.

DEAR SIR: In compliance with your recent request I have the honor to transmit herewith, for use of the select committee in charge of the pulp and paper investigation, statistics of imports and exports of pulp wood, wood pulp, and printing paper for the leading European and other foreign countries. The matter contained in Bulletin 33 of the hearings has been revised and brought down to date by the addition of figures for the year 1907 and the fiscal year figures of 1908. I have not found it advisable to eliminate the figures for the earlier years and leave it to your judgment to have published either the figures for the latest year only or those for the several years. In the case of Germany data have been added for the two years 1906 and 1907. Figures have also been presented for China and Japan, which did not appear in the original statement. In the case of several European countries items for the years 1906 and 1907 are not the same as appear in the printed statement for 1905, for the reason that the statistical schedules of the respective countries were changed in the beginning of 1906 in conformity with the new tariffs which went into effect about that time; it was therefore impracticable in the case of those countries to place the data for the years 1906 and 1907 alongside the printed data for the earlier year.

Hoping that the inclosed information will prove of service to the committee, I am,

Yours, very truly,

O. P. AUSTIN,
Chief of Bureau.

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STATEMENTS SHOWING TRADE IN WOOD PULP, CELLULOSE, AND OTHER ARTICLES USED IN THE MANUFACTURE OF PAPER AND PRINT PAPER BY PRINCIPAL COUNTRIES OF THE WORLD, EXCLUDING THE UNITED STATES, FOR THE LATEST AVAILABLE YEARS FROM OFFICIAL SOURCES.

[PREPARED BY THE BUREAU OF STATISTICS, DEPARTMENT OF COMMERCE AND LABOR.]

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources.

[Prepared by the Bureau of Statistics, Department of Commerce and Labor.]

AUSTRIA-HUNGARY.

IMPORTS (SPECIAL) FOR CALENDAR YEARS 1906 AND 1907.

Imported from—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Cellulose, chemically produced:				
Bleached—	*Pounds.*		*Pounds.*	
United Kingdom			45,194	$1,248
Germany	2,240,756	$66,025	2,102,307	58,074
Russia in Europe			22,707	627
Sweden	97,002	2,858	457,014	12,625
Norway			23,369	646
United States	646,389	19,046	394,623	10,901
Total	2,984,147	87,929	3,045,214	84,121
Unbleached--				
Germany	272,709	5,775	141,976	2,876
United Kingdom	33,730	714	135,803	2,751
Russia in Europe			45,194	916
Sweden	88,404	1,872	523,152	10,598
United States	49,383	1,046		
Total	444,226	9,407	846,125	17,141
Paper stock, mechanically produced: [a]				
Germany	322,753	3,492		
Sweden	22,928	248		
Total	345,681	3,740		
Paper stock, of wood, straw, etc.:				
Mechanically produced, bleached— [b]				
Germany	24,030	282	69,224	829
Belgium			22,707	272
United States	115,962	1,361		
Sweden			203,264	2,433
Total	139,992	1,643	295,195	3,534
Mechanically produced, unbleached— [b]				
Germany	329,808	3,568		
Italy	14,771	160		
Russia	23,148	251		
United States	114,419	1,238		
Total	482,146	5,217	117,505	1,353
Wood for the manufacture of cellulose:				
Germany	1,087,088	2,703	2,697,328	6,954
Italy	130,512	324		
Russia—European			18,565,378	44,447
Total	1,217,600	3,027	21,262,706	51,401
Paper, unsized, ordinary: [c]				
Coarse gray, half white and colored, unsized printing paper—				
Germany	11,023	609		
Switzerland	2,866	158		
Italy	1,984	110		
France	3,968	219		
United Kingdom	12,787	706		
Total	32,628	1,802		

[a] Imported during January-February, 1906, under old tariff.
[b] Imported during ten months ending December, 1906, under new tariff and new tariff classification.
[c] Item discontinued since March 1, 1906, when new tariff went into effect.

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

AUSTRIA-HUNGARY—Continued.

IMPORTS (SPECIAL) FOR CALENDAR YEARS 1906 AND 1907—Continued.

Imported from—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Printing paper, unsized, smooth:				
For books and newspapers—				
Germany	190,257	$10,511	199,737	$11,035
Switzerland	4,850	268	882	49
Italy	31,085	1,717	8,598	475
France	6,173	341	3,307	183
United Kingdom	15,212	840	.....	.....
Russia	1,543	85	.....	.....
China	661	37	.....	.....
Netherlands	.....	.....	1,323	73
Total	249,781	13,799	213,847	11,815
RECAPITULATION.				
Cellulose, chemically produced	3,428,373	97,336	3,891,389	101,262
Paper stock, mechanically produced	345,681	3,740	.....	.....
Paper stock, of wood, straw, etc.	622,138	6,860	412,700	4,887
Wood for the manufacture of cellulose	1,217,600	3,027	21,262,706	51,401
Paper, unsized, ordinary	32,628	1,802	.....	.....
Printing paper, unsized	249,781	13,799	213,847	11,815
Total	5,896,201	126,564	25,780,592	169,365

EXPORTS (SPECIAL), CALENDAR YEARS 1906 AND 1907.

Exported to—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
All printing paper (unsized):	*Pounds.*		*Pounds.*	
Trieste, free port	509,704	$14,787	354,279	$9,460
Hamburg, free port	2,341,285	68,060	1,363,986	36,423
Bremen, free port	1,543	41	.....	.....
Germany	364,200	10,364	425,047	11,350
Switzerland	37,478	1,099	29,983	801
Italy	351,634	9,492	71,650	1,913
Netherlands	442,684	13,016	188,273	5,027
Denmark	37,478	1,100	.....	.....
France	20,062	591	5,952	159
Portugal	6,393	188	8,598	230
Belgium	320,549	9,445	202,382	5,404
United Kingdom	993,613	28,651	1,359,136	36,293
Sweden	9,259	273	5,071	135
Norway	26,014	767	11,023	294
Roumania	145,504	4,137	209,437	5,593
Bulgaria	2,618,624	76,846	2,717,610	72,569
Servia	1,455,036	42,374	1,685,858	45,018
Turkey	5,904,359	170,686	4,805,587	128,325
Greece	1,732,815	49,852	899,697	24,025
British possessions in Mediterranean	42,108	1,226	28,880	771
China	3,197,773	92,417	2,556,234	68,260
Japan	2,336,214	67,161	2,505,748	66,912
British India	2,454,382	70,914	2,857,162	76,296
Asia [a]	192,903	5,668	69,445	1,854
Egypt	1,297,407	37,582	1,341,940	35,834
German Africa	200,619	5,911	43,210	1,154
Cape Colony	72,752	2,138	2,866	77
Africa [a]	202,823	5,976	1,543	41
United States	46,958	1,308	135,803	3,626
Mexico	46,958	1,384	46,738	1,248
Brazil	695,772	20,501	1,048,508	27,999
Argentina	378,309	11,085	856,046	22,859
Chile	34,833	1,026	138,008	3,685
Peru	55,115	1,624	10,141	271
America [a]	57,981	1,708	34,612	924
British Australasia	24,030	708	.....	.....
All other countries	.....	.....	166,888	4,457
Total	28,655,171	830,126	26,187,341	699,287

[a] Subdivisions not specified

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

AUSTRIA-HUNGARY—Continued.

EXPORTS (SPECIAL) FOR CALENDAR YEARS 1906 AND 1907—Continued.

Exported to—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Cellulose, ground:				
Mechanically produced—[a]	*Pounds.*		*Pounds.*	
Trieste, free port	89,700	$971	.....	.....
Hamburg, free port	44,500	482	.....	.....
Germany	2,449,800	26,505	.....	.....
Switzerland	444,000	4,804	.....	.....
Italy	2,120,600	22,944	.....	.....
France	32,000	346	.....	.....
Spain	6,000	64	.....	.....
Belgium	30,900	334	.....	.....
Great Britain	72,800	787	.....	.....
Russia	557,100	6,027	.....	.....
Roumania	8,800	95	.....	.....
Bulgaria	55,800	604	.....	.....
Servia	22,000	239	.....	.....
Turkey	99,200	1,073	.....	.....
Greece	22,000	239	.....	.....
British India	22,000	239	.....	.....
Egypt	26,500	286	.....	.....
Brazil	22,000	239	.....	.....
Argentina	22,000	239	.....	.....
Total	6,147,700	66,517	.....	.....
Cellulose, chemically produced:				
Bleached—				
Trieste, free port	1,126,110	33,182	212,523	$5,871
Hamburg, free port	597,887	17,617	1,149,919	31,765
Germany	16,535,382	487,227	16,081,455	444,235
Switzerland	3,599,671	106,067	3,860,696	106,648
Italy	21,153,578	623,304	33,687,170	930,576
France	20,306,130	598,333	23,174,314	640,169
Portugal	45,856	1,351	412,701	11,400
Belgium	486,555	14,337	361,113	9,975
Netherlands	139,110	4,099	97,664	2,698
Great Britain	6,821,473	200,999	4,414,271	121,940
Russia	1,451,289	42,763	166,006	4,586
Roumania	264,552	7,795	289,244	7,990
Greece	21,826	643	66,138	183
Bulgaria	22,487	663	.....	.....
Turkey	97,223	2,865	97,002	2,680
China	320,989	9,458	298,062	8,234
Japan	1,178,800	34,734	1,296,746	35,821
British India	89,286	2,631	.....	.....
United States	2,035,066	59,964	12,577,023	347,428
Brazil	441,581	13,011	.....	.....
Argentina	481,705	14,194	1,173,729	32,423
American countries [b]	80,688	2,378	110,230	3,045
All other countries	.....	.....	435,849	13,685
Total	77,297,244	2,277,615	99,961,855	2,761,352
Unbleached—				
Trieste, free port	787,263	15,948	1,690,046	31,902
Hamburg, free port	535,497	10,848	903,886	17,062
Germany	15,492,385	313,839	13,409,259	253,119
Switzerland	3,357,165	68,008	2,214,962	41,810
Italy	23,863,693	483,422	18,457,793	348,417
France	16,422,507	332,681	15,757,819	297,451
Spain	22,266	451	11,464	261
Belgium	2,295,871	46,509	2,315,224	38,040
Great Britain	1,372,584	27,805	1,235,899	23,329
Greece	44,533	902	.....	.....
Russia	968,260	19,615	660,498	12,468
Roumania	110,450	2,237	745,375	14,070
Bulgaria	66,138	1,340	22,046	416
Turkey	66,138	1,340	308,644	5,826
Japan	58,642	1,188	738,541	13,941
British India	44,974	911	87,964	1,661

[a] This item is specified only in January and February, 1906. In the remaining months of that year and in 1907 it is included under other headings.
[b] Subdivisions not specified.

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

AUSTRIA-HUNGARY—Continued.

EXPORTS (SPECIAL) FOR CALENDAR YEARS 1906 AND 1907—Continued.

Exported to—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Cellulose, chemically produced—Continued.				
Unbleached—Continued.	*Pounds.*		*Pounds.*	
Egypt	22,046	$447	44,092	$832
United States	68,784	1,393	35,803	6,758
Brazil	11,905	241	.....	.....
British Australasia	22,046	447	.....	.....
All other countries	.....	.....	181,618	3,012
Total	65,633,147	1,329,572	58,820,933	1,110,330
Paper stock, of wood, straw, esparto, and other similar fibers, mechanically ground:				
Unbleached—				
Trieste, free port	387,569	4,193	403,833	4,649
Hamburg, free port	53,792	582	69,224	797
Germany	2,675,943	28,952	2,963,203	34,106
Switzerland	1,701,731	18,412	3,832,256	44,109
Italy	15,123,998	163,633	13,179,981	155,762
France	830,914	8,990	134,040	1,543
Spain	319,887	3,461	22,046	254
Belgium	372,798	4,033	439,597	5,060
Netherlands	22,707	246	.....	.....
Great Britain	958,560	10,371	55,776	642
Russia	4,200,204	45,444	5,399,065	62,143
Roumania	356,704	3,859	1,618,397	18,628
Bulgaria	65,477	708	2,866	33
Servia	28,660	310	.....	.....
Turkey	115,080	1,245	.....	.....
Greece	68,563	742	4,189	48
Japan	137,788	1,491	.....	.....
British India	27,558	298	22,046	254
Egypt	9,039	98	66,138	761
United States	139,772	1,512	.....	.....
Brazil	36,596	396	.....	.....
Argentina	22,928	248	.....	.....
British Australasia	154,983	1,677	.....	.....
Australasia [a]	26,676	289	.....	.....
All other countries	.....	.....	.....	.....
Total	27,837,925	301,190	28,212,707	328,789
Pulp wood and wood for the manufacture of cellulose:				
Germany	421,510,040	1,280,620	640,162,709	2,004,175
Switzerland	11,697,828	34,468	18,780,326	57,067
Italy	6,081,389	18,479	6,491,665	19,128
Roumania	24,030	55	.....	.....
Total	439,313,288	1,333,623	665,434,700	2,080,309
RECAPITULATION.				
All printing paper (unsized)	28,655,171	830,126	26,187,341	699,287
Cellulose, ground	6,147,700	66,517	.....	.....
Cellulose, chemically produced	142,930,391	3,607,187	158,782,788	3,871,682
Paper stock, of wood, etc., mechanically ground	27,837,925	301,190	28,212,707	328,789
Pulp wood and wood for manufacture of cellulose	439,313,288	1,333,623	665,434,700	2,080,369
Total	644,884,475	6,138,643	878,617,536	6,980,127

[a] Subdivisions not separately stated.

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

BELGIUM.

IMPORTS (SPECIAL), CALENDAR YEARS 1906 AND 1907.

Imported from—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Printing paper, including writing, drawing, and wrapping paper:	*Pounds.*		*Pounds.*	
Germany	19,324,042	$981,191	21,084,100	$1,070,559
United Kingdom	3,124,134	158,630	3,118,627	158,350
Austria-Hungary	1,117,547	56,744	837,378	42,518
United States	104,538	5,308	90,298	4,585
France	1,455,475	73,903	1,462,324	74,250
Hamburg, free port	1,999,372	101,519	1,534,505	77,915
Italy	79,438	4,034	10,961	557
Norway	343,360	17,434	617,032	31,330
Netherlands	2,463,286	125,075	2,523,650	128,140
Sweden	1,621,899	82,353	1,534,466	77,914
Switzerland	18,285	929	48,199	2,447
Other countries	27,740	1,407	49,295	2,504
Total	31,679,106	1,608,527	32,910,835	1,671,069
Wood pulp:				
Germany	20,502,555	380,874	18,988,947	352,756
Austria-Hungary	2,219,737	41,236	827,408	15,371
United States	6,155,922	114,358	5,448,444	101,215
France	443,796	8,244	252,404	4,685
Hamburg, free port	1,544,783	28,697	.....	.....
Norway	118,446,394	2,200,365	138,729,986	2,577,171
Netherlands	1,475,669	27,413	2,709,072	50,326
Russia	41,532,131	771,538	27,954,791	519,313
Sweden	36,513,083	678,299	47,442,390	881,332
Other countries	92,709	1,722	[a] 800,359	[a] 14,872
Total	228,926,769	4,252,746	243,153,801	4,517,041
RECAPITULATION.				
Printing paper, including writing, drawing, and wrapping paper	31,679,106	1,608,527	32,910,835	1,671,069
Wood pulp	228,926,769	4,252,746	243,153,801	4,517,041
Total	260,605,875	5,861,273	276,064,646	6,188,110

[a] Includes United Kingdom, 500,777 pounds, valued at $9,303.

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

BELGIUM—Continued.

EXPORTS (SPECIAL), CALENDAR YEARS 1906 AND 1907.

Exported to.	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Printing paper, including writing, drawing, and wrapping paper:	*Pounds.*		*Pounds.*	
Germany	997,864	$50,667	1,296,459	$65,829
United Kingdom	41,927,621	2,128,902	47,016,699	2,387,304
Australia	3,528,092	179,141	5,996,031	304,452
Brazil	4,992,669	253,506	5,720,955	290,485
Canada	1,723,786	87,526	2,155,420	109,443
Cape Colony	558,266	28,346	548,978	27,875
Chile	546,686	27,758	1,439,879	73,111
China	3,303,201	167,722	5,087,926	258,343
Cuba	1,641,095	83,328	2,103,923	106,828
Denmark	549,435	27,898	551,249	27,990
Egypt	464,979	23,609	1,221,051	62,001
Spain	861,002	43,718	739,670	37,557
United States	3,221,829	163,590	4,067,868	206,549
France	1,374,493	69,791	2,219,889	112,716
Greece	269,213	13,669	.....	.....
Hamburg, free port	1,959,153	99,477	1,283,408	65,166
British India	3,737,659	189,782	3,583,751	181,967
Dutch East Indies	400,316	20,326	908,346	46,122
Straits Settlements	306,869	15,581	.....	.....
Italy	105,799	5,372	134,955	6,852
Japan	13,660,824	693,637	17,346,148	880,762
Mexico	413,698	21,006	1,134,628	57,611
Norway	629,839	31,980	765,503	38,872
Netherlands	9,690,344	492,033	9,407,590	477,676
Peru	379,991	19,294	334,385	16,979
Portugal	65,020	3,301	.....	.....
Argentina	1,391,704	70,665	1,783,614	90,564
Sweden	297,515	$15,106	309,493	15,715
Switzerland	268,928	13,655	252,350	12,813
Turkey	2,489,271	126,394	2,822,102	143,294
Other countries	2,121,031	107,703	2,643,824	136,141
Total	103,878,192	5,274,483	122,876,154	6,239,117
Wood pulp:				
Germany	8,933,293	241,421	10,727,462	289,909
United Kingdom	2,564,250	69,299	275,855	7,455
Brazil	23,942	647	.....	.....
Cuba	2,068,186	55,893	1,859,060	50,241
Spain	10,627,563	287,209	4,530,065	122,425
United States	6,580,130	177,990	8,747,163	236,391
France	24,311,262	657,009	28,011,670	757,013
British India	184,554	4,988	145,731	3,939
Italy	1,574,384	42,548	4,199,842	113,500
Mexico	2,594,673	70,121	2,302,354	62,221
Netherlands	4,476,969	120,990	7,038,834	190,224
Portugal	2,089,496	56,469	3,085,871	83,395
Argentina	1,459,972	39,456	1,378,477	37,253
Sweden	77,007	2,081	.....	.....
Other countries	660,704	17,852	640,220	17,301
Total	68,232,385	1,843,974	72,942,604	1,971,267
RECAPITULATION.				
Printing paper, including writing, drawing, and wrapping paper	103,878,192	5,274,483	122,876,154	6,239,117
Wood pulp	68,232,385	1,843,974	72,942,604	1,971,267
Total	172,110,577	7,118,457	195,818,758	8,210,384

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

DENMARK (INCLUDING COPENHAGEN, FREE PORT).

IMPORTS (GENERAL), CALENDAR YEARS 1905 AND 1906.

Imported from—	1905.		1906.	
	Quantity.	Value.	Quantity.	Value.
Wood mass for paper (cellulose, straw mass, and paper mass):	*Pounds.*		*Pounds.*	
United Kingdom			48,501	
Norway	40,929,052		35,079,058	
Sweden	39,180,453		48,613,624	
Russia	508,022		1,284,290	
Germany	1,526,532		1,172,406	
Netherlands	597,945		123,017	
United States	143,260		540,013	
Belgium			34,171	
Total	82,885,264	$604,608	86,895,080	$780,684
Writing and printing paper, and other paper with coloring matter added to the mass:				
Norway	660,934		2,052,616	
Sweden	5,753,834		6,894,655	
Russia	8,612		61,483	
Germany	4,717,547		3,855,520	
United Kingdom	607,587		801,433	
Netherlands	1,599,555		1,888,606	
Belgium	530,266		468,627	
France	16,294		14,608	
Italy	137		42	
Austria-Hungary	87		147	
Switzerland	71		11	
United States	44,303		192,903	
Warehouses	578,745		459,672	
Faroes			110	
Total	14,517,972	739,680	16,690,433	797,836
RECAPITULATION.				
Wood mass for paper (cellulose, straw, and paper mass)	82,885,264	604,608	86,895,080	780,684
Writing and printing paper, and other paper with coloring matter added to the mass	14,517,972	739,680	16,690,433	797,836
Total	97,403,236	1,344,288	103,585,513	1,578,520

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

DENMARK (INCLUDING COPENHAGEN, FREE PORT)—Continued.

EXPORTS, CALENDAR YEARS 1905 AND 1906.

Exported to—	1905.		1906.	
	Quantity.	Value.	Quantity.	Value.
Wood mass for paper manufacture (cellulose, straw, and paper mass):	*Pounds.*		*Pounds.*	
Norway	557			
Sweden	133,783		112,511	
Russia	523,781		431,544	
Germany	142,307		1,040,440	
United Kingdom	6,614		38,140	
United States	13,550,684		10,479,566	
West Indies	1,145,840			
East Indies			10,281,152	
Total	15,503,566	$120,627	22,383,352	$212,256
Writing and printing paper, and all paper with coloring matter added in the mass: [a]				
Norway	39,468		190,212	
Sweden	136,535		416,527	
Russia	34,943		80,657	
Germany	432,369		987,974	
United Kingdom	235,839		878,670	
Netherlands	145,504		6,614	
Belgium	49,604		64,142	
United States	1,808,874		4,310,803	
West Indies, excluding Danish	442,022		106,923	
East Indies, China, and Pacific Islands	986,559		6,202,818	
Faroes	24,797		40,270	
Iceland	64,496		574,869	
Warehouses	7,035		502	
Greece and Turkey			115,256	
Africa			19,841	
Destination not stated			302,692	
Greenland			17,582	
Danish West Indies			110	
Total	4,408,045	(b)	14,316,462	379,756
RECAPITULATION.				
Wood mass for paper manufacture (cellulose, straw, etc.)	15,503,566	120,627	22,383,352	212,256
Writing and printing paper, and all paper with coloring matter added to the mass	4,408,045	(b)	14,316,462	379,756
Total	19,911,611	120,627	36,699,814	592,012

[a] In 1906 this includes wrapping paper and waste paper. [b] Value not separately stated.

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

FRANCE.

IMPORTS (SPECIAL), CALENDAR YEARS 1906 AND 1907.

Imported from—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Cellulose, mechanically produced:	*Pounds.*		*Pounds.*	
Russia	37,371,656	.....	18,401,135	.....
Sweden	100,876,464	.....	147,082,314	.....
Norway	178,517,089	.....	182,418,304	.....
United Kingdom	1,264,350	.....	2,979,958	.....
Germany	5,708,870	.....	6,750,706	.....
Canada	8,273,948	.....	691,142	.....
Other foreign countries	893,093	.....	1,473,334	.....
Tunis	220	.....	41,887	.....
Total	332,905,690	$3,788,678	359,838,780	$4,410,253
Cellulose, chemically produced:				
Russia	4,302,982	.....	2,410,289	.....
Sweden	64,488,951	.....	93,000,610	.....
Norway	46,649,147	.....	48,539,560	.....
Germany	47,903,577	.....	54,926,066	.....
Belgium	11,597,195	.....	12,127,946	.....
Switzerland	9,619,208	.....	8,165,177	.....
Austria-Hungary	39,066,349	.....	42,546,134	.....
United States	4,119,337	.....	4,318,370	.....
Other foreign countries	3,161,208	.....	5,087,996	.....
French colonies	13,229	.....	3,307	.....
Total	230,921,183	4,851,747	271,125,455	5,933,867
RECAPITULATION.				
Cellulose, mechanically produced	332,905,690	3,788,678	359,838,780	4,410,253
Cellulose, chemically produced	230,921,183	4,851,747	271,125,455	5,933,867
Total	563,826,873	8,640,425	630,964,235	10,344,120

EXPORTS (SPECIAL), CALENDAR YEARS 1906 AND 1907.

Exported to—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Cellulose, mechanically produced:	*Pounds.*		*Pounds.*	
Germany	154,324	.....	.....	.....
Spain	5,482,675	.....	3,046,537	.....
Other foreign countries	14,330	.....	8,377	.....
French colonies	1,984	.....	882	.....
Total	5,653,313	$64,338	3,055,796	$37,452
Cellulose, chemically produced:				
Germany	299,167	.....	271,166	.....
Belgium	445,554	.....	658,955	.....
Switzerland	119,711	.....	199,957	.....
Italy	176,811	.....	66,358	.....
Other foreign countries	36,817	.....	2,751,561	.....
Total	1,078,060	22,650	[a] 3,947,997	86,406
RECAPITULATION.				
Cellulose, mechanically produced	5,653,313	64,338	3,055,796	37,452
Cellulose, chemically produced	1,078,060	22,650	3,947,997	86,406
Total	6,731,373	86,988	7,003,793	123,858

[a] Includes 10,362 pounds exported to French colonies.

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

GERMANY.

IMPORTS (SPECIAL), CALENDAR YEARS 1905, 1906, AND 1907.

Imported from—	1905.		1906.		1907.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Wood pulp, ground:	*Pounds.*		*Pounds.*		*Pounds.*	
Norway	1,733,036	$17,900	772,492	$7,900	3,389,400	$38,300
Austria-Hungary	9,726,916	99,700	6,875,927	72,800	5,347,500	60,700
Russia	3,404,564	35,000	4,385,170	46,700	617,300	6,900
Finland	13,448,501	137,800	6,262,828	65,400	.....	.....
Sweden	8,743,223	89,700	10,498,525	112,300	17,646,100	200,200
Other countries	226,412	2,400	1,704,817	18,100	4,850,900	55,000
Total	37,282,652	382,500	30,499,759	323,200	31,851,200	361,100
Cellulose, straw mass, and other fiber mass:						
Belgium	600,313	11,700	457,014	9,300	89,900	1,700
Netherlands	1,407,196	30,500	.....	.....	1,029,500	18,800
Norway	6,003,567	110,200	2,784,749	54,500	5,799,400	106,400
Austria-Hungary	30,379,608	705,200	26,286,108	584,300	26,604,000	603,100
Russia	3,651,699	65,000	5,570,804	105,200	8,308,700	(a)
Finland	6,495,413	115,700	5,429,268	107,800	9,413,000	(a)
Sweden	19,445,013	357,000	25,590,997	479,800	29,042,700	533,100
United States	4,068,589	87,800	5,262,159	108,000	4,203,300	95,200
Other countries	412,922	7,700	1,665,456	32,300	652,700	(a)
Total	72,464,320	1,490,800	73,046,555	1,481,200	85,143,200	1,695,300
Pulp wood (wood for grinding and wood for the manufacture of cellulose):						
Austria-Hungary	359,516,688	970,300	442,427,726	1,276,400	553,432,000	1,672,900
Russia	281,726,716	760,400	706,884,487	2,059,400	902,567,600	2,728,200
Sweden	1,281,093	3,300	11,225,823	32,800	.....	.....
Finland	215,541,317	534,100	166,716,041	484,600	185,946,300	562,200
Other countries	887,792	50,000	3,892,662	11,300	601,500	1,900
Total	858,953,606	2,318,100	1,331,146,739	3,864,500	1,642,547,400	4,965,200
Printing paper, including colored:						
From all countries	400,000	100,000	1,259,929	43,500	117,395,000	40,500
RECAPITULATION.						
Wood pulp, ground	37,282,652	382,500	30,499,759	323,200	31,851,200	361,100
Cellulose, straw mass, etc.	72,464,320	1,490,800	73,046,555	1,481,200	85,143,200	1,695,300
Pulp wood	858,953,606	2,318,100	1,331,146,739	3,864,500	1,642,547,400	4,965,200
Printing paper, including colored	400,000	100,000	1,259,929	43,500	117,395,000	40,500
Total	969,100,578	4,291,400	1,435,952,982	5,712,400	1,876,936,800	7,062,100

(a) Values not given in German official reports.

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

GERMANY—Continued.

EXPORTS (SPECIAL), CALENDAR YEARS 1905, 1906, AND 1907.

Exported to—	1905.		1906.		1907.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Wood pulp, ground:	*Pounds.*		*Pounds.*		*Pounds.*	
France	6,018,619	$71,400	5,273,182	$64,600	2,621,500	$34,000
Other countries	3,439,211	47,600	4,550,295	58,200	3,974,000	51,400
Total	9,457,830	119,000	9,823,477	122,800	6,595,500	85,400
Cellulose, straw moss, and other fiber moss:						
Belgium	13,249,780	309,400	12,347,744	279,900	16,378,400	371,200
France	36,861,286	833,000	48,088,499	1,090,000	57,135,100	1,296,400
Great Britain	19,114,076	428,400	18,869,833	427,700	34,277,800	777,100
Italy	17,923,580	404,600	15,589,608	353,400	21,732,700	492,700
Netherlands	9,744,431	214,200	8,108,518	184,000	8,224,700	186,600
Austria-Hungary	4,188,782	95,200	4,018,325	90,900	3,285,700	74,500
Russia	3,681,719	95,200	2,543,006	57,800	2,746,700	62,400
Sweden			1,485,239	33,800	2,438,300	55,200
Switzerland	9,435,784	214,200	6,386,506	144,900	6,026,900	136,700
Spain	4,872,215	119,000	2,966,289	67,400	4,625,500	105,000
Japan			778,444	17,600	1,940,900	44,000
Argentina	4,012,413	95,200	4,914,715	111,400	4,232,800	95,900
Mexico	1,653,467	47,600	2,202,837	50,000	4,510,000	102,300
United States	15,807,142	357,000	17,043,984	386,300	35,857,400	813,000
Other countries	3,659,673	47,600	1,571,438	35,300	1,825,300	41,100
Total	144,204,348	3,260,600	146,914,985	3,330,400	205,288,200	4,654,100
Pulp wood (wood for the manufacture of cellulose):						
France	43,475,153	142,800	36,785,514	129,700	41,021,400	150,700
Switzerland	34,325,970	119,000	38,625,915	136,600	45,622,700	167,600
Other countries	705,479		570,992	1,900	351,000	1,100
Total	78,506,602	261,800	75,982,421	268,200	86,995,100	319,400
Printing paper, including colored:						
Great Britain	16,733,084	404,600	14,615,616	334,100	27,654,600	656,900
Netherlands	6,018,619	142,800	7,126,811	162,600	9,186,600	218,200
British India, etc	1,631,421	47,600	4,232,611	96,700	6,453,700	153,300
China			2,102,748	48,100	1,220,700	29,000
Japan	5,687,926	142,800	4,289,710	98,000	11,328,600	269,200
Argentina	13,448,196	309,400	13,336,504	304,800	16,455,800	390,800
Brazil	7,627,993	190,400	7,727,343	176,600	11,108,100	263,900
Chile	1,829,837	47,600	1,393,534	54,700	3,285,300	78,100
Peru			982,590	22,400		
Uruguay	1,388,912	23,800	1,242,733	28,600	1,281,500	30,500
United States	1,212,542	23,800	1,145,952	26,200	2,317,700	55,000
Australian Commonwealth	3,086,471	71,400	3,957,918	90,300	5,554,000	131,900
Other countries	8,994,859	214,200	9,726,035	221,800	13,379,000	317,400
Total	67,659,860	1,618,400	77,757,701	1,664,900	109,225,600	2,594,200
RECAPITULATION.						
Wood pulp, ground	9,457,830	119,000	9,823,477	122,800	6,595,500	85,400
Cellulose, straw mass, etc	144,204,348	3,260,600	146,914,985	3,330,400	205,288,200	4,654,100
Pulp wood	78,506,602	261,800	75,982,421	268,200	86,995,100	319,400
Printing paper, including colored	67,659,860	1,618,400	77,757,701	1,664,900	109,225,600	2,594,200
Total	299,828,640	5,259,800	310,478,584	5,386,300	408,104,400	7,653,100

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

GREECE.

IMPORTS (SPECIAL), CALENDAR YEARS 1905 AND 1906.

Imported from—	1905.		1906.	
	Quantity.	Value.	Quantity.	Value.
Paper, ordinary, unsized:	*Pounds.*		*Pounds.*	
Austria-Hungary	949,916	$64,986	702,344	$33,648
Germany	312,618	21,387	168,492	8,072
Netherlands	38,895	2,661	37,816	1,812
Belgium	17,079	1,168	2,504	120
Italy	14,862	1,017	42,951	2,058
United Kingdom	8,291	567	5,149	246
France	550	37	2,327	111
Total	1,342,211	91,823	961,583	46,067
Paper, sized:				
Austria-Hungary	553,438	49,220	671,013	45,924
Germany	76,723	6,824	76,792	5,256
Netherlands	13,787	1,226	6,751	462
Italy	10,712	953	27,794	1,902
Belgium	9,803	872	1,503	103
United Kingdom	6,522	580	12,092	828
Turkey	4,957	441	.....	.....
France	4,370	388	28,913	1,978
Total	680,312	60,504	824,858	56,453
Paper, printing, for newspapers:				
Italy	.....	.....	5,065	277
United Kingdom	.....	.....	812	46
Netherlands	1,351,930	85,170	1,354,824	74,179
Austria-Hungary	390,529	24,045	483,170	26,454
Germany	136,977	8,434	435,202	23,828
France	1,918	118	.....	.....
Turkey	.....	.....	2,256	122
Total	1,881,354	117,767	2,281,329	124,906
RECAPITULATION.				
Paper, ordinary, unsized	1,342,211	91,823	961,583	46,067
Paper, sized	680,312	60,504	824,858	56,453
Paper, printing, for newspapers	1,881,354	117,767	2,281,329	124,906
Total	3,903,877	270,094	4,067,770	127,426

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

ITALY.

IMPORTS (SPECIAL), CALENDAR YEARS 1905 AND 1906.

Imported from—	1905.		1906.	
	Quantity.	Value.	Quantity.	Value.
Cellulose:	*Pounds.*		*Pounds.*	
Australia			69,005	$1,812
Austria-Hungary	38,216,080	$936,767	49,218,855	1,292,635
Belgium	1,275,141	31,257	2,912,527	76,492
Denmark	111,332	2,729		
France	302,030	7,403	265,437	6,971
Germany	29,012,536	711,166	25,736,540	675,919
United Kingdom	2,559,962	62,751	6,238,861	163,851
Netherlands	2,390,889	58,606	3,264,825	85,744
Norway	1,083,120	26,550	831,363	21,834
Sweden			1,030,661	27,068
Switzerland	1,555,786	38,136	2,534,213	66,556
United States	586,644	14,380	229,942	6,039
Total	77,093,540	1,889,745	92,332,229	2,424,921
Wood and straw pulp, etc. (wet), other than cellulose:				
Switzerland	23,148	263		
Wood and straw pulp, etc. (dry), other than cellulose:				
Austria-Hungary	12,069,524	190,191	12,896,600	203,222
Belgium	236,774	3,731		
Germany	3,683,666	58,047	7,876,675	124,119
United Kingdom	363,318	5,725	190,479	3,002
Netherlands	249,781	3,936	46,297	730
Norway	45,856	723	1,058,439	16,679
Sweden			145,946	2,300
United States	23,369	368	18,298	288
All other countries			112,436	1,771
Total	16,672,288	262,721	22,345,170	352,111
Paper, white, or tinted or colored in the mass, unruled, all grades:				
Austria-Hungary	251,986	16,545	527,566	36,024
Belgium	77,381	5,081	170,638	11,652
France	483,689	31,758	628,979	42,949
Germany	2,481,939	162,960	3,777,620	257,950
United Kingdom	257,938	16,936	445,334	30,409
Netherlands	6,173	405	138,891	9,484
Switzerland	363,318	23,855	177,693	12,134
United States	85,979	5,645	56,659	3,869
Total	4,008,403	263,185	5,923,380	404,471
RECAPITULATION.				
Cellulose	77,093,540	1,889,745	92,332,229	2,424,921
Wood and straw pulp, etc. (wet)	23,148	263		
Wood and straw pulp, etc. (dry)	16,672,288	262,721	22,345,170	352,111
Paper, white, or tinted in the mass, unruled, all grades	4,008,403	263,185	5,923,380	404,471
Total	97,797,379	2,415,914	121,600,779	3,181,503

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

ITALY—Continued.

EXPORTS (SPECIAL), CALENDAR YEARS 1905 AND 1906.

Exported to—	1905.		1906.	
	Quantity.	Value.	Quantity.	Value.
Paper, white or colored in the mass, unruled, all grades:	*Pounds.*		*Pounds.*	
Austria-Hungary	1,527,567	$113,670	1,707,039	$127,024
Belgium	41,887	3,117	74,516	5,545
France	91,711	6,824	112,877	8,399
Germany	245,372	18,259	248,461	18,488
United Kingdom	760,587	56,597	509,047	37,879
Greece	13,889	1,034	28,219	2,100
Malta	104,498	7,776	101,854	7,579
Montenegro	9,259	689	441	33
Netherlands	10,362	771	.....	.....
Portugal	21,605	1,608	26,235	1,952
Roumania	.....	.....	27,558	2,051
Spain	16,314	1,214	11,905	886
Switzerland	217,594	16,192	175,047	13,026
Turkey in Europe	503,310	37,453	547,628	40,750
Turkey in Asia	298,944	22,245	326,284	24,279
British India and Ceylon	649,916	48,362	259,925	19,341
China	16,755	1,247	882	66
Japan	47,399	3,527	1,984	148
Dutch Possessions	1,764	131	.....	.....
Egypt	780,428	58,074	1,011,922	75,299
Tunis	106,482	7,924	71,430	5,315
Tripoli	21,385	1,591	34,613	2,576
Eritrea	18,298	1,362	26,455	1,969
Cape Colony	19,180	1,427	5,512	410
All other Africa	4,189	312	9,039	673
United States	252,868	18,817	103,617	7,710
Canada	5,512	410	.....	.....
Mexico	134,260	9,973	121,034	9,006
Cuba and Porto Rico	4,189	312	8,378	623
Other Central American States	245,592	18,275	406,532	30,251
Brazil	472,225	35,139	184,527	13,731
Peru	242,947	18,078	207,675	15,454
Argentina	2,362,670	175,812	1,643,987	122,332
Uruguay	10,802	804	25,353	1,887
Chile	392,639	29,217	390,880	29,086
All other South America	1,764	131	4,409	328
Australia	5,071	377	10,582	787
All other countries	.....	.....	11,684	869
Total	10,761,534	718,751	8,437,531	627,852
Cellulose:				
France	106,482	2,610	170,198	4,470
Germany	335,981	8,236	.....	.....
Switzerland	329,367	8,074	729,950	19,171
Argentina	.....	.....	44,092	1,158
Total	771,830	18,920	944,240	24,799
RECAPITULATION.				
Paper, white or colored in the mass, unruled, all grades	10,761,534	718,751	8,437,531	627,852
Cellulose	771,830	18,920	944,240	24,799
Total	11,533,364	737,671	9,381,771	652,651

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

NORWAY.

IMPORTS, CALENDAR YEARS 1906 AND 1907.

Imported from—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Wood mass, cellulose, pulp, etc.:	*Pounds.*		*Pounds.*	
Sweden by sea and rail	94,754,127			
Denmark	143,630			
Germany	6,548			
United Kingdom	1,102			
Total	94,905,407	$1,153,713		
Printing, drawing, and filtering paper:				
Sweden by sea and rail	532,190		591,141	
Denmark	32,915		88,912	
Germany	592,178		1,102,961	
Netherlands	354,059		347,511	
Belgium	530,161		723,351	
United Kingdom	138,008		150,045	
Other countries	265			
Total	2,179,776	92,755	3,003,921	$131,454
RECAPITULATION.				
Wood mass, cellulose, pulp, etc	94,905,407	1,153,713		
Printing, drawing, and filtering paper	2,179,776	92,755	3,003,921	131,454
Total	97,085,183	1,246,468	3,003,921	131,454

EXPORTS, CALENDAR YEARS 1906 AND 1907.

Exported to—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Wood mass, dry (Norwegian produce):	*Pounds.*		*Pounds.*	
Sweden by sea	815,702		110,230	
Denmark	1,456,059		2,955,488	
Germany	4,086,887		6,939,640	
Netherlands	385,805		131,835	
Belgium	1,278,205		662,041	
United Kingdom	5,176,379		3,403,748	
France	9,094,262		7,101,854	
Portugal and Madeira	191,800		130,071	
Spain	4,217,576		6,488,248	
Italy	1,351,751		1,137,948	
East Indies	306,880			
China	286,598			
United States	132,276		429,897	
Mexico and Central America			687,394	
West Indies			110,230	
Argentina			3,066,819	
Total	28,790,180	$248,490	33,355,443	$324,387
Wood mass, dry (Swedish produce):				
Denmark			154,322	
Germany	262,215		1,041,982	
Netherlands	353,353		987,925	
Belgium	1,102,529		464,553	
United Kingdom	6,693,916		6,507,494	
France	5,830,351		4,625,361	
Portugal and Madeira	22,046			
Spain	1,990,423		3,057,912	
Italy			216,051	
West Indies			332,454	
Argentina			1,119,056	
Total	16,254,824	140,298	18,507,110	179,989

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

NORWAY—Continued.

EXPORTS, CALENDAR YEARS 1906 AND 1907—Continued.

Exported to—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Wood mass, wet (Norwegian produce):	*Pounds.*		*Pounds.*	
Sweden by sea	44,092			
Denmark	28,948,007		37,680,889	
Germany	337,304		1,715,179	
Netherlands	50,426,080		66,238,089	
Belgium	85,255,322		99,021,174	
United Kingdom	487,923,373		551,885,388	
France	144,485,361		156,290,509	
Spain	1,147,494		1,973,117	
Total	798,567,033	$3,252,073	914,804,325	$4,114,658
Wood mass, wet (Swedish produce):				
Belgium	2,080,481		1,027,101	
United Kingdom	22,000,145		20,106,393	
France	1,335,789			
Denmark			110,230	
Germany			132,276	
Netherlands			554,655	
Total	25,416,415	103,502	21,930,655	98,651
Printing paper (Norwegian produce):				
United States			22,509	
West Indies			30,864	
Sweden, by sea	2,116		81,702	
Denmark	181,196		1,358,056	
Russia, Baltic ports	82,673			
Germany	11,180,452		11,729,376	
Netherlands	4,078,995		2,689,524	
Belgium	176,831		719,074	
United Kingdom	93,637,916		83,538,930	
France	3,580,138		707,478	
Africa	138,670		131,989	
Australia	315,809		3,133,266	
Other countries	17,769		20,261	
East Indies			30,401	
Total	113,392,565	2,219,308	104,193,430	2,026,589
Cellulose, dry (Norwegian produce):				
Sweden	110,891		110,230	
Denmark	5,580,857		4,023,615	
Russia, Baltic ports	222,224			
Germany	13,245,315		13,469,863	
Netherlands	3,472,730		4,702,191	
Belgium	13,448,060		16,119,881	
United Kingdom	140,397,261		129,957,202	
France	35,482,772		33,625,265	
Portugal and Madeira	1,844,721		870,817	
Spain	9,243,866		8,810,882	
Italy	630,472		1,963,858	
East Indies	897,206			
Japan	936,955			
Australia	661,380		55,115	
United States	42,365,534		46,253,037	
Mexico and Central America	2,236,787		3,190,056	
Argentina	220,460		167,991	
Total	270,997,391	4,941,518	263,320,003	4,737,516
Cellulose, dry (Swedish produce):				
Denmark	286,601		1,940,048	
Germany	819,921		6,011,944	
Netherlands	650,364		298,172	
Belgium	14,030,878		11,465,243	
United Kingdom	29,814,607		20,137,875	
France	10,930,782		14,414,116	
Portugal and Madeira	44,092			
Spain	2,621,583		4,758,122	
Italy	242,508			
All other countries			837,130	
Total	59,441,336	1,083,872	59,862,650	1,077,012

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

NORWAY—Continued.

EXPORTS, CALENDAR YEARS 1906 AND 1907—Continued.

Exported to—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Cellulose, wet (Norwegian produce):	*Pounds.*		*Pounds.*	
Germany			66,138	
Denmark	1,822,782		196,209	
Netherlands	1,819,872		2,832,911	
Belgium	765,886		1,309,091	
United Kingdom	11,063,346		10,837,814	
France	110,231			
Spain	768,862		369,491	
Total	16,350,979	$129,203	15,611,654	$137,104
Cellulose, wet (Swedish produce):				
Denmark			22,399	
Netherlands	22,046	188	374,782	
Belgium			22,046	
United Kingdom			1,503,956	
Total	22,046	188	1,923,183	15,785
Blocks for the manufacture of cellulose (Norwegian produce):	*Cubic feet.*		*Cubic feet.*	
Sweden, by sea	918			
Denmark	14,477			
United Kingdom	21,824		10,735	
France	1,451,370		1,995,453	
Spain	15,611		25,103	
Total	[a] 1,504,200	85,626	[a] 2,031,291	138,127
RECAPITULATION.				
Wood mass, dry	45,045,004	388,788	51,862,553	504,376
Wood mass, wet	823,983,448	3,355,575	936,734,980	4,213,309
Printing paper	113,392,565	2,219,308	104,193,430	2,026,589
Cellulose, dry	330,438,727	6,025,390	323,182,653	6,814,528
Cellulose, wet	16,373,025	129,391	17,534,837	152,889
Blocks for the manufacture of cellulose	23,427,250	85,626	69,436,743	138,127
Total	1,352,660,019	12,204,078	1,502,945,196	13,849,818

Weight, calculated in the Statistiske Centralbureau for 1906, 23,427,250 kilograms, equal to 51,647,715 pounds; for 1907, 31,496,300 kilograms, equal to 69,436,743 pounds.

PORTUGAL.

IMPORTS (SPECIAL), CALENDAR YEARS 1905 AND 1906.

Imported from--	1905.		1906.	
	Quantity.	Value.	Quantity.	Value.
Printing paper, for newspapers:	*Pounds.*		*Pounds.*	
Germany	424,915	$16,215	444,573	$12,528
Austria-Hungary	1,113	59	6,654	302
Belgium	9,982	335	7,311	508
France	666	422	8,525	1,108
Netherlands	14,802	531	21,817	745
United Kingdom	70,190	5,521	47,935	2,511
Spain			248,750	9,028
Sweden	91,257	1,652		
Switzerland	25,020	589		
United States			2,422	80
Total	637,945	25,324	787,987	26,810

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

ROUMANIA.

IMPORTS (SPECIAL), CALENDAR YEAR 1906.

Imported from—	Quantity.	Value.
Pulp of wood, straw, and other vegetable fibers, mechanically produced:	*Pounds.*	
Austria-Hungary	248,776	.....
Germany	267	.....
Total	249,043	$3,488
Printing paper, uncalendered:		
United Kingdom	84	.....
Austria-Hungary	4,392	.....
Belgium	443	.....
Switzerland	53	.....
France	243	.....
Germany	1,206	.....
Italy	212	.....
Total	6,632	261
Printing paper, calendered:		
United Kingdom	68	.....
Austria-Hungary	2,092	.....
France	414	.....
Germany	3,996	.....
Total	6,570	345
Paper in rolls:		
United Kingdom	82	.....
Austria-Hungary	2,895	.....
Switzerland	2	.....
France	2,727	.....
Germany	11,896	.....
Russia	110	.....
Total	17,712	930
RECAPITULATION.		
Pulp of wood, straw, and other vegetable fibers, mechanically produced	249,043	3,488
Printing paper, uncalendered	6,632	261
Printing paper, calendered	6,570	345
Paper in rolls	17,712	930
Total	279,957	5,024

RUSSIA.

IMPORTS (SPECIAL), CALENDAR YEAR 1905.

Imported from—	Quantity.	Value.
Wood paper mass pressed into sheets like pasteboard, etc.:	*Pounds.*	
Austria-Hungary	361	$36
Germany	63,702	857
China	289	10
Finland	16,394,378	482,930
Total	16,458,730	483,833
Cellulose of all kinds:		
Austria-Hungary	500,079	15,689
Belgium	188,180	5,904
Great Britain	2,311	73
Germany	3,850,695	120,812
Netherlands	531,244	16,667
Denmark	189,732	5,953
Norway	137,262	4,306
United States	55,179	1,731
Sweden	186,157	5,841
Finland	6,313,027	162,056
Total	11,953,866	339,032

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

Russia—Continued.

IMPORTS (SPECIAL), CALENDAR YEAR 1905—Continued.

Imported from—	Quantity.	Value.
Paper, unsized, not elsewhere specified, white and colored:	*Pounds.*	
Austria-Hungary	1,697	$364
Great Britain	10,328	1,502
Germany	414,458	32,690
Netherlands	13,217	1,931
Denmark	325	155
China	138,706	22,676
Persia	.....	1
Turkey	72	3
France	6,175	909
Sweden	1,950	366
Finland	831	46
Total	587,759	60,643
Writing, printing, and other paper:		
Austria-Hungary	30,659	13,361
Belgium	6,139	2,841
Bulgaria	.....	2
Great Britain	11,231	3,642
Germany	395,066	186,297
Netherlands	2,636	581
Greece	253	103
Denmark	433	102
Egypt	.....	3
Spain	36	19
Italy	397	112
China	73,777	9,462
Norway	36	22
Persia	36	3
Portugal	.....	4
Roumania	72	9
United States	831	257
Turkey	758	266
France	19,753	7,378
Switzerland	2,239	1,094
Sweden	1,083	846
Finland	95,517	9,969
Other countries	686	250
Total	641,638	236,623

RECAPITULATION.

Wood paper mass pressed into sheets like pasteboard, etc	16,458,730	483,833
Cellulose of all kinds	11,953,866	339,032
Paper, unsized, n. e. s., white and colored	587,759	60,643
Writing, printing, and other paper	641,638	236,623
Total	29,641,993	1,120,131

IMPORTS (SPECIAL), CALENDAR YEAR 1906.

Wood pulp, mechanically produced, dry, containing less than 50 per cent water:	*Pounds.*	
Austria-Hungary	5,768,600	$93,785
United Kingdom	428,543	7,869
Germany	5,301,863	65,225
Denmark	68,987	809
Norway	47,038	670
United States	225,192	8,240
France	5,343	77
Sweden	875,858	17,161
Finland	17,829,321	281,381
Total	30,550,745	475,217
Wood pulp, mechanically produced, dry, containing 50 per cent of water and over:		
Finland	7,105,816	74,778

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

Russia—Continued.

IMPORTS (SPECIAL), CALENDAR YEAR 1906—Continued.

Imported from—	Quantity.	Value.
Wood pulp, chemically produced, dry, containing less than 50 per cent of water:	*Pounds.*	
Austria-Hungary	913,980	$27,784
United Kingdom	39,024	1,051
Germany	3,313,114	105,933
Netherlands	44,223	1,331
Denmark	61,262	1,545
Italy	108	4
China	62,958	1,796
Norway	81,406	2,555
France	325	13
Japan	120,610	3,441
Finland	4,285,538	110,047
All other countries	38,519	1,279
Total	8,961,067	256,779
Paper, n. e. s., white and colored:		
Austria-Hungary	21,046	4,695
United Kingdom	103,210	25,431
Germany	2,441,604	194,097
Netherlands	32,129	7,884
Denmark	122,884	5,756
China	1,008,598	43,190
United States	12,852	958
France	19,133	3,636
Japan	1,009,320	43,214
Finland	88,382,728	4,296,339
All other countries	363,005	16,050
Total	93,516,509	4,640,250
RECAPITULATION.		
Wood pulp, mechanically produced, dry, containing less than 50 per cent water	30,550,745	475,217
Wood pulp, mechanically produced, dry, containing 50 per cent water and over	7,105,816	74,778
Wood pulp, chemically produced, dry, containing less than 50 per cent water	8,961,067	256,779
Paper, n. e. s., white and colored	93,516,509	4,640,250
Total	140,134,137	5,447,024

EXPORTS (SPECIAL), CALENDAR YEAR 1905.

Exported to—	Quantity.	Value.
Wood paper mass:	*Pounds.*	
Belgium	11,828,774	$139,853
Great Britain	16,095,949	203,733
Germany	3,120,763	37,215
Denmark	275,282	3,926
Portugal	147,120	1,776
France	108,589	1,751
Argentina	6,551,006	74,740
Total	38,127,483	462,994

EXPORTS (SPECIAL), CALENDAR YEAR 1906.

Wood pulp:	*Pounds.*	
Belgium	25,903,122	$299,153
United Kingdom	16,685,348	201,143
Germany	8,165,640	96,652
Denmark	2,145,712	26,106
Portugal	180,608	2,061
France	339,268	4,839
Argentina	13,478,260	153,824
Austria-Hungary	4,801	67
Total	66,902,759	783,845

NOTE.—Import classification changed since January, 1906.

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

RUSSIA—FINLAND.

IMPORTS (SPECIAL), CALENDAR YEAR 1906.

Imported from—	Quantity.	Value.
	Pounds.	
Wood and paper pulp, statuary composition, etc.:		
Germany	370,152	$12,962
Netherlands	3,316	116
Russia	24	1
All other countries	1,210	42
Total	374,702	13,121
Printing paper:		
Germany	16,495	1,444
Belgium	2,006	176
United Kingdom	2,000	175
Russia	6,424	562
All other countries	553	48
Total	27,478	2,406
RECAPITULATION.		
Wood and paper pulp, statuary composition, etc	374,702	13,121
Printing paper	27,478	2,406
Total	402,180	15,527

EXPORTS (SPECIAL), CALENDAR YEAR 1906.

Exported to—	Quantity.	Value.
	Pounds.	
Wood pulp, mechanically produced, wet:		
Russia	7,261,526	$31,785
Netherlands	1,763,336	7,718
Belgium	1,321,689	5,785
United Kingdom	3,720,968	16,287
France	9,458,015	41,400
Total	23,525,534	102,975
Wood pulp, mechanically produced, dry:		
Russia	16,968,412	170,829
Germany	10,535,421	106,065
Netherlands	2,597,598	26,151
Belgium	7,336,097	73,856
United Kingdom	1,627,986	16,390
France	22,629,875	227,826
Spain	6,875,170	69,216
Mexico	2,204,622	22,195
Total	70,775,181	712,528
Wood pulp, chemically produced, wet:		
Russia	273,920	6,475
Wood pulp, chemically produced, dry:		
Russia	2,046,355	48,369
Denmark	165,898	3,921
Germany	13,372,426	316,080
Netherlands	784,316	18,539
Belgium	1,726,440	40,807
United Kingdom	9,109,418	215,317
France	1,505,757	35,591
Mexico	573,201	13,549
Total	29,283,812	692,173
Printing and drawing paper:		
Russia	59,712,178	2,247,784
Germany	1,292,634	39,606
United Kingdom	132,251	4,059
All other countries	221	7
Total	61,137,284	2,291,449
RECAPITULATION.		
Wood pulp, mechanically produced, wet	23,525,534	102,975
Wood pulp, mechanically produced, dry	70,775,181	712,528
Wood pulp, chemically produced, wet	273,920	6,475
Wood pulp, chemically produced, dry	29,283,812	692,173
Printing and drawing paper	61,137,284	2,291,449
Total	184,905,731	3,805,600

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

SERVIA.

IMPORTS (SPECIAL), CALENDAR YEAR 1906.

Imported from—	Quantity.	Value.
Printing paper, of all colors, satin finished or not:	*Pounds.*	
Austria-Hungary	2,124,998	$65,190
Roumania	2	2
France	2,044	363
Total	2,127,042	65,555
Paper stock of wood, straw, and other vegetable materials: Germany	2	1
Grand total	2,127,044	65,556

SPAIN.

IMPORTS (GENERAL), CALENDAR YEARS 1906 AND 1907.

Imported from—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Paper pulp, including paper cuttings and old paper:	*Pounds.*		*Pounds.*	
Germany	11,069,063	$145,956	10,193,440	$151,982
Austria-Hungary	812,796	10,717	1,317,888	19,649
Belgium	158,404	2,089	394,013	5,875
Denmark	49,042	646	910,059	13,569
France	5,272,189	69,519	7,303,425	108,892
United Kingdom	401,859	5,299	1,334,598	19,896
Netherlands	299,339	3,947	546,304	8,145
Italy	22,046	291	1,153,645	17,200
Norway	32,266,037	425,458	31,209,495	465,225
Russia	5,719,081	75,411	1,642,692	24,492
Sweden	20,053,225	264,420	26,383,910	393,377
Switzerland	658,514	8,683	.....	.....
United States	.....	.....	119,723	1,785
Portugal	.....	.....	22,046	329
British North America	.....	.....	44,091	657
Total	76,781,595	1,012,436	82,575,129	1,231,173
Roll paper, sized or unsized:				
Norway	.....	.....	95	7
Germany	432,342	25,396	832,968	51,345
Austria-Hungary	209,609	14,464	172,713	10,169
Belgium	89,240	4,701	261,827	12,995
United States	5,441	433	13,988	882
France	242,025	17,965	437,485	31,183
United Kingdom	61,253	4,159	92,468	6,538
Netherlands	368,305	23,796	260,343	19,541
Italy	14,956	763	3,007	239
Japan	340	44	5,503	730
Switzerland	7	1	15,520	755
Total	1,423,518	91,722	2,095,919	134,334
RECAPITULATION.				
Paper pulp, including paper cuttings and old paper.	76,781,595	1,012,436	82,575,129	1,231,173
Roll paper, sized or unsized	1,423,518	91,722	2,095,919	134,334
Total	78,205,113	1,104,158	84,671,048	1,365,507

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

SPAIN—Continued.

EXPORTS (GENERAL), CALENDAR YEARS 1906 AND 1907.

Exported to—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Roll paper for printing or writing:	*Pounds.*		*Pounds.*	
Canary Islands	52,359	$2,843	38,115	$2,094
Ceuta	750	41	4,464	245
Germany	22,765	1,236	43,627	2,396
Argentina	80,938	4,394	40,474	2,223
Belgium	274,986	14,931	704,961	38,724
Bolivia	3,792	206	.....	.....
Colombia	28,561	1,551	29,903	1,643
Costa Rica	985	53	1,164	64
Cuba	217,550	11,812	199,862	10,979
Chile	26,427	1,435	26,870	1,476
Ecuador	3,790	206	6,387	351
Philippine Islands	129,216	7,016	74,683	4,102
France	367,200	19,937	99,901	5,488
Guatemala	7,394	402	1,283	70
Netherlands	271,362	14,734	818,976	44,987
Italy	584	32	2,888	159
Morroco	639	35	2,513	138
Mexico	94,326	5,121	29,442	1,617
Peru	10,355	562	.....	.....
Portugal	176,611	9,589	.....	.....
Porto Rico	27,379	1,486	114,101	6,268
Santo Domingo	838	45	.....	.....
Turkey	304	17	.....	.....
Uruguay	5,465	297	567	31
Venezuela	628	34	2,447	134
Brazil	.....	.....	137	7
United States	.....	.....	1,235	68
Panama	.....	.....	47,326	2,600
Dutch America	.....	.....	573	31
China	.....	.....	66	4
Salvador	.....	.....	505	28
Total	1,805,204	98,015	2,292,470	125,927

SWEDEN.

IMPORTS (SPECIAL), CALENDAR YEARS 1906 AND 1907.

Imported from—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Wood mass, chemically prepared, dry:	*Pounds.*		*Pounds.*	
Norway	2,547,977	$44,912	.....	.....
Denmark	4,762	84	.....	.....
Germany	2,014,475	35,509	.....	.....
Netherlands	491,776	8,668	.....	.....
Belgium	93,942	1,656	.....	.....
Great Britain	558	10	.....	.....
United States	236,452	4,168	.....	.....
Total	5,389,942	95,007	5,449,329	$94,729
Wood mass, chemically prepared, wet:				
Norway	113,151	997	.....	.....
Germany	2,800	25	.....	.....
Netherlands	461,114	4,064	.....	.....
Total	577,065	5,086	299,892	2,448
Wood mass, mechanically prepared dry:				
Norway	143,705	1,275	.....	.....
Germany	220	2	.....	.....
Total	143,925	1,277	18,042	198

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

SWEDEN—Continued.

IMPORTS (SPECIAL), CALENDAR YEARS 1906 and 1907—Continued.

Imported from—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Wood mass, mechanically prepared, wet:				
Norway	1,749,615	$70,188	.....	.....
Germany	21,380	857	.....	.....
Total	1,770,995	$71,045	936,794	$18,272
Paper, "other kinds" (including printing paper):				
Finland	36,715	3,347	.....	.....
Denmark	185,003	16,867	.....	.....
Germany	2,952,962	269,230	.....	.....
Netherlands	544,142	49,611	.....	.....
Belgium	180,729	16,478	.....	.....
Great Britain	342,264	31,205	.....	.....
France	132,161	12,050	.....	.....
Austria-Hungary	133,832	12,202	.....	.....
United States	133,041	12,130	.....	.....
All other countries	14,977	550	.....	.....
Total	4,655,826	423,670	.....	.....
Printing paper (total)	.....	.....	1,030,150	25,046
RECAPITULATION.				
Wood mass, chemically prepared, dry	5,389,942	95,007	5,449,329	94,729
Wood mass, chemically prepared, wet	577,065	5,086	299,892	2,448
Wood mass, mechanically prepared, dry	143,925	1,277	18,042	198
Wood mass, mechanically prepared, wet	1,770,995	71,045	936,794	18,272
Paper, "other kinds" (including printing paper)	4,655,826	423,670	.....	.....
Printing paper	.....	.....	1,030,150	25,046
Total	12,537,753	596,085	7,734,207	140,693

EXPORTS (SPECIAL), CALENDAR YEARS 1906 AND 1907.

Exported to—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Wood mass, mechanically prepared, dry:	*Pounds.*		*Pounds.*	
Norway	13,025,537	$115,591	.....	.....
Germany	27,077,735	240,292	.....	.....
Netherlands	9,700,778	86,086	.....	.....
Belgium	2,710,335	24,052	.....	.....
Great Britain	7,579,686	67,263	.....	.....
France	31,389,225	278,553	.....	.....
Spain	11,329,805	100,543	.....	.....
Portugal	5,498,824	48,797	.....	.....
Italy	1,667,163	14,795	.....	.....
Japan	224,869	1,996	.....	.....
United States	100,927	896	.....	.....
Mexico	55,115	489	.....	.....
Brazil	673,946	5,981	.....	.....
Uruguay	322,136	2,859	.....	.....
Argentina	7,582,149	67,285	.....	.....
Total	118,938,230	1,055,478	130,878,919	$1,521,915
Wood mass, mechanically prepared, wet:				
Norway	12,892,113	51,718	.....	.....
Denmark	9,405,485	37,731	.....	.....
Netherlands	12,252,108	49,151	.....	.....
Belgium	121,253	486	.....	.....
Great Britain	66,502,546	266,782	.....	.....
France	82,606,618	331,386	.....	.....
Spain	44,092	177	.....	.....
Argentina	31,358	126	.....	.....
Total	183,855,573	737,557	251,867,684	1,316,576

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

SWEDEN—Continued.

EXPORTS (SPECIAL), CALENDAR YEARS 1906 AND 1907—Continued.

Exported to—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Wood mass, chemically prepared, dry:	*Pounds.*		*Pounds.*	
Norway	9,452,762	$166,622		
Russia	33,069	583		
Denmark	9,073,302	159,933		
Germany	45,094,623	794,873		
Netherlands	7,937,259	139,908		
Belgium	30,187,999	532,117		
Great Britain	326,836,619	5,761,077		
France	71,617,095	1,262,379		
Spain	13,976,928	246,368		
Portugal	1,118,835	19,722		
Italy	1,668,049	29,402		
Austria	22,399	395		
British south Africa	78,396	1,382		
British East Indies	1,008,935	17,784		
Japan	15,141,799	266,901		
Other Asia	78,396	1,382		
United States	15,545,457	274,017		
Mexico	2,610,634	46,017		
Brazil	642,844	11,331		
Uruguay	112,435	1,982		
Argentina	7,260,427	127,978		
Total	559,498,262	9,862,153	708,713,366	$12,320,027
Wood mass, chemically prepared, wet:				
Norway	2,861,848	25,223		
Denmark	21,999,042	193,886		
Germany	44,378	391		
Netherlands	225,972	1,991		
Belgium	1,674,054	14,754		
Great Britain	25,208,111	222,169		
France	22,399	198		
Spain	164,243	1,447		
Total	52,200,047	460,059	68,845,226	670,932
Wood for paper manufacture:				
Norway	348,871	15,885		
Denmark	17,728	807		
France	49,475	2,253		
Total	416,074	18,945	566,549	51,594
Paper, "other kinds" (including printing paper):				
Norway	2,622,142	63,752		
Denmark	3,330,500	80,974		
Germany	33,188,990	806,917		
Netherlands	8,108,223	197,134		
Belgium	2,732,630	66,438		
Great Britain	161,837,616	3,934,726		
France	152,854	3,716		
Spain	156,796	3,812		
Canary Islands	166,666	4,052		
Italy	246,483	5,993		
Turkey in Europe	614,724	14,946		
Greece	122,644	2,982		
Egypt	276,831	6,731		
Morocco	58,201	1,415		
British South Africa	1,269,614	30,868		
Turkey in Asia	75,351	1,832		
British East Indies	2,295,425	55,808		
China	1,016,440	24,713		
Japan	1,448,634	35,220		
Australia	3,066,859	74,564		
British North America	191,337	4,652		
United States	6,567,656	159,678		
Central America	160,975	3,914		
Brazil	1,866,163	45,372		
Uruguay	84,275	2,049		
Argentina	147,574	3,588		
Chile	1,784,906	43,396		
All other countries	209,263	5,087		
Total	233,799,772	5,684,329		

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

SWEDEN—Continued.

EXPORTS (SPECIAL), CALENDAR YEARS 1906 AND 1907—Continued.

Exported to—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Coarse paper, made of mechanically prepared wood pulp (total)	*Pounds.*		*Pounds.* 23,831,860	$405,594
Coarse paper, made of chemically prepared wood pulp (total)			65,600,155	2,073,400
Printing paper (total)			112,379,578	2,732,262
RECAPITULATION.				
Wood mass, mechanically prepared, dry	118,938,230	$1,055,478	130,878,319	1,521,915
Wood mass, mechanically prepared, wet	183,855,573	737,557	251,867,684	1,316,577
Wood mass, chemically prepared, dry	559,498,262	9,862,153	708,713,366	12,320,027
Wood mass, chemically prepared, wet	52,200,047	460,059	68,845,226	670,932
Wood for paper manufacture	416,074	18,945	566,549	51,594
Paper, "other kinds" (including printing paper)	233,799,772	5,684,329		
Coarse paper, made of mechanically prepared wood pulp			23,831,860	405,594
Coarse paper, made of chemically prepared wood pulp			65,600,155	2,073,400
Printing paper			112,379,578	2,732,262
Total	1,148,707,958	17,818,521	1,362,683,337	21,092,300

SWITZERLAND.

IMPORTS (SPECIAL), CALENDAR YEARS 1906 AND 1907.

Imported from—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Fiber material for the manufacture of paper, mechanically produced (wood mass, wood meal), wet or dry; also rag pulp:	*Pounds.*		*Pounds.*	
Germany	674,614	$8,268	595,903	$8,347
Austria-Hungary	4,199,144	51,465	4,414,712	61,837
France	55,116	676	11,023	154
Italy	209,439	2,567	882	12
Sweden	96,122	1,178		
Total	5,234,435	64,154	5,022,520	70,350
Fiber material for the manufacture of paper, chemically produced (cellulose, straw mass, esparto mass, etc.), wet or dry, unbleached:				
Germany	2,799,650	53,920	3,500,905	67,426
Austria-Hungary	1,197,551	23,064	1,370,600	26,397
Italy	247,800	4,772	315,037	6,068
Netherlands	67,021	1,291		
Russia	22,046	425	49,383	951
Sweden	1,191,598	20,863	2,601,208	50,099
United States			24,912	523
Total	5,525,666	104,335	7,862,045	151,464
Fiber material for the manufacture of paper, chemically produced (cellulose, straw mass, esparto mass, etc.), wet or dry, bleached:				
Germany	3,164,956	77,580	2,806,015	68,782
Austria-Hungary	2,457,493	60,238	3,164,483	77,569
Italy	179,897	4,410	87,302	2,140
Netherlands	112,215	2,750	145,063	3,556
Russia	44,533	1,092		
Sweden	22,708	557	22,046	540
United States	22,928	562	123,017	3,015
Total	6,004,730	147,189	6,347,926	155,602

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

SWITZERLAND—Continued.

IMPORTS (SPECIAL), CALENDAR YEARS 1906 AND 1907—Continued.

Imported from—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Printing paper for newspapers, containing wood fiber, weighing 45 to 55 grams per square meter:	*Pounds.*		*Pounds.*	
Germany	12,787	$560	218,476	$9,563
France	9,039	396	220	10
Italy	5,071	222	220	10
Belgium	220	10	.....	.....
Netherlands	2,425	106	220	10
Great Britain	441	19	.....	.....
Total	29,983	1,313	219,136	9,593
Other printing, writing, and drawing paper, of one color:				
Germany	2,404,582	178,930	2,771,844	206,260
Austria-Hungary	397,934	29,611	589,290	43,851
France	264,555	19,686	353,397	26,297
Italy	19,401	1,444	55,556	4,134
Belgium	83,996	6,250	63,052	4,692
Netherlands	14,771	1,099	25,132	1,870
Great Britain	241,186	21,114	281,307	24,267
Sweden	5,291	394	1,323	98
Japan	.....	.....	220	19
United States	9,700	849	21,385	1,872
Total	3,441,416	259,377	4,162,506	313,720
Other printing, writing, and drawing paper, of more than one color:				
Germany	32,408	2,836	46,958	4,111
Austria-Hungary	3,307	290	1,764	154
France	3,527	309	2,205	193
Great Britain	6,614	579	220	19
Italy	.....	.....	220	19
Total	45,856	4,014	51,367	4,496
RECAPITULATION.				
Fiber material for the manufacture of paper mechanically produced (wood mass, wood meal), wet or dry; also rag pulp	5,234,435	64,154	5,022,520	70,350
Fiber material for the manufacture of paper, chemically produced (cellulose, straw mass, esparto mass, etc.), wet or dry, unbleached	5,525,666	104,335	7,862,045	151,464
Fiber material for the manufacture of paper, chemically produced (cellulose, straw mass, esparto mass, etc.), wet or dry, bleached	6,004,730	147,189	6,347,926	155,602
Printing paper for newspapers, containing wood fiber, weighing 45 to 55 grams per square meter	29,983	1,313	219,136	9,593
Other printing, writing, and drawing paper, of one color	3,441,416	259,377	4,162,506	313,720
Other printing, writing, and drawing paper, of more than one color	45,856	4,014	51,367	4,496
Total	20,282,086	580,382	23,665,500	705,225

EXPORTS (SPECIAL), CALENDAR YEARS 1906 AND 1907.

Exported to—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Fiber material for the manufacture of paper, mechanically produced (wood mass, wood meal), wet or dry; also rag pulp:	*Pounds.*		*Pounds.*	
Germany	453,491	$27,967	533,734	$35,668
France	1,479,963	60,813	1,949,307	74,692
Netherlands	441	29	.....	.....
Great Britain	67,682	3,881	.....	.....
Total	2,001,577	92,690	2,483,041	110,360

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

SWITZERLAND—Continued.

EXPORTS (SPECIAL), CALENDAR YEARS 1906 AND 1907—Continued.

Exported to—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Fiber material for the manufacture of paper, chemically produced (cellulose, straw mass, esparto mass, etc.), wet or dry, unbleached:	*Pounds.*		*Pounds.*	
Germany	340,173	$7,287	23,368	$483
France	5,740,837	113,648	5,128,561	103,577
Italy	1,402,360	28,564	1,194,673	25,447
Total	7,483,370	149,499	6,346,602	129,507
Fiber material for the manufacture of paper, chemically produced (cellulose, straw mass, esparto mass, etc.), wet or dry, bleached:				
Germany	14,110	483	23,368	600
France	2,896,874	68,006	2,387,802	58,697
Italy	1,461,444	31,808	1,822,984	45,542
Great Britain	44,533	2,895	2,205	135
Total	4,416,961	103,192	4,236,359	104,974
Printing paper for newspapers containing wood fiber, weighing 45 to 55 grams per square meter:				
Germany	2,425	216	4,189	168
Austria-Hungary	2,866	183	1,543	88
France	34,392	1,690	12,787	560
Italy	441	22	.....	.....
Spain	1,323	127	.....	.....
Russia	.....	.....	661	29
United States	2,205	187	1,543	97
Total	43,652	2,425	20,723	942
Other printing, writing, and drawing paper of one color:				
Germany	49,825	5,832	36,376	4,692
Austria-Hungary	26,455	1,371	3,527	359
France	73,635	5,567	81,791	6,394
Italy	30,203	3,252	40,565	4,477
Belgium	1,102	122	9,700	609
Great Britain	1,102	174	2,205	297
Russia	441	82	1,543	149
Spain	4,850	456	661	63
Roumania	441	146	.....	.....
Egypt	2,205	434	441	141
British East Indies	882	267	.....	.....
Philippine Islands	220	97	.....	.....
China	441	39	661	89
United States	2,425	196	11,023	823
Central America	.....	.....	441	97
Total	194,227	18,035	188,934	18,190
Other printing, writing, and drawing paper of more than one color:				
Germany	1,543	221	.....	.....
Austria-Hungary	441	60	.....	.....
France	70,328	4,837	59,745	4,206
United States	220	33	.....	.....
Total	72,532	5,151	59,745	4,206
RECAPITULATION.				
Fiber material for the manufacture of paper, mechanically prepared (wood mass, wood meal), wet or dry; also rag pulp	2,001,577	92,690	2,483,041	110,360
Fiber material for the manufacture of paper, chemically produced (cellulose, straw mass, esparto mass, etc.), wet or dry, unbleached	7,483,370	149,499	6,346,602	129,507
Fiber material for the manufacture of paper, chemically produced (cellulose, straw mass, esparto mass, etc.), wet or dry, bleached	4,416,961	103,192	4,236,359	104,974
Printing paper for newspapers containing wood fiber, weighing 45 to 55 grams per square meter	43,652	2,425	20,723	942
Other printing, writing, and drawing paper of one color	194,227	18,035	188,934	18,190
Other printing, writing, and drawing paper of more than one color	72,532	5,151	59,745	4,206
Total	14,212,319	370,992	13,335,404	368,179

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

UNITED KINGDOM.

IMPORTS (GENERAL), CALENDAR YEARS 1906 AND 1907.

Imported from—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Pulp of wood, chemical, dry:	*Pounds.*		*Pounds.*	
Russia	26,203,520	$485,866	30,369,920	$562,850
Sweden	284,583,040	5,245,119	353,731,340	6,456,395
Norway	172,585,280	3,227,482	158,943,680	2,973,709
Germany	16,988,160	329,287	34,751,360	667,878
Netherlands	5,812,800	115,964	7,347,200	144,005
Portugal	4,970,560	80,224	5,411,840	92,473
Austria-Hungary	3,953,600	84,735	9,643,200	199,332
United States	6,027,840	126,442	4,350,080	94,833
British possessions	16,345,280	279,620	1,686,720	29,535
Other countries	1,583,680	29,948	672,000	14,512
Total	539,053,760	10,004,687	606,907,840	11,235,522
Pulp of wood, chemical, wet:				
Sweden	16,264,640	144,341	29,780,800	254,917
Norway	20,404,160	178,021	19,541,760	170,274
British possessions			560,000	3,042
Other countries			100,800	545
Total	36,668,800	322,362	49,983,360	428,778
Pulp of wood, mechanical, dry:				
Russia	4,477,760	39,954	2,322,880	25,496
Sweden	4,336,640	42,173	5,438,720	61,128
Norway	6,121,920	57,834	5,808,320	56,578
Netherlands	2,240	24		
Other countries			24,640	234
Total	14,938,560	139,985	13,594,560	143,436
Pulp of wood, mechanical, wet:				
Russia	3,776,640	16,371	6,493,760	39,789
Sweden	69,914,880	340,154	97,686,400	542,960
Norway	513,412,480	2,462,104	587,453,440	2,930,611
Canada	181,348,160	900,414	142,340,800	788,855
Germany			1,444,800	7,178
Other countries	143,360	788	492,800	2,409
Total	768,595,520	3,719,831	835,912,000	4,311,802
Paper, unprinted, on reels:				
Russia	919,744	27,301	1,874,992	55,746
Sweden	74,909,184	1,884,465	63,235,200	1,602,981
Norway	68,067,888	1,762,598	53,990,384	1,382,704
Germany	6,895,392	229,743	11,695,264	362,929
Netherlands	4,671,072	151,898	10,024,896	315,004
Belgium	936,208	39,467	1,577,968	63,741
France	841,232	51,268	1,048,768	94,561
Italy	17,920	375		
Austria-Hungary	82,768	2,394	611,744	18,712
United States	45,690,512	1,219,355	32,931,696	771,842
Canada	28,060,704	595,226	12,992,560	288,938
Total	231,092,624	5,964,090	189,983,472	4,957,158
Paper, unprinted, not on reels:				
Russia	21,899,472	634,387	23,752,736	633,682
Sweden	105,852,432	3,051,193	118,648,432	3,449,589
Norway	103,932,528	2,820,404	106,278,592	2,915,199
Denmark	694,400	25,335	1,117,200	37,842
Germany	40,201,840	1,633,285	42,350,672	1,668,742
Netherlands	50,671,600	2,161,159	55,899,872	2,349,765
Belgium	32,404,848	1,341,928	33,063,072	1,333,698
France	5,723,536	772,518	5,438,272	802,228
Italy	656,544	48,402	576,688	42,553
Austria-Hungary	2,297,344	68,530	2,965,088	90,799
Japan	327,824	80,176	406,000	109,764
United States	13,142,864	600,867	9,125,200	457,247
Canada	12,096,224	237,879	10,482,528	206,237
Other British possessions	49,056	3,212	1,680	122
Other countries	87,584	7,300	199,696	12,054
Total	390,038,096	13,486,575	410,305,728	14,109,516
RECAPITULATION.				
Pulp of wood, chemical, dry and wet	575,722,560	10,327,049	656,891,200	11,664,300
Pulp of wood, mechanical, dry and wet	783,534,080	3,859,816	849,506,560	4,455,238
Paper, unprinted, on reels or not	621,130,720	19,450,665	600,289,200	19,066,674
Total	1,980,387,360	33,637,530	2,106,686,960	35,186,212

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

UNITED KINGDOM—Continued

EXPORTS (SPECIAL), CALENDAR YEARS 1906 AND 1907.

Exported to—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Paper, writing or printing, and envelopes:				
Foreign countries—	*Pounds.*		*Pounds.*	
Russia	27,032	$30,630	106,960	$28,600
Sweden	253,232	25,807	243,936	22,021
Denmark	576,464	37,822	384,160	25,077
Germany	1,025,584	95,680	981,344	85,032
Netherlands	2,290,736	144,871	2,627,968	149,971
Belgium	2,500,288	160,561	2,858,912	173,724
France	8,823,472	582,866	10,599,008	695,121
Portuguese East Africa	2,011,184	89,714	1,675,072	70,093
Egypt	1,633,296	107,374	1,810,032	110,995
China	2,608,592	145,912	3,452,736	176,581
Japan	6,848,016	333,730	11,285,904	533,008
United States	1,440,544	140,783	1,418,368	134,865
Chile	1,571,160	93,052	2,280,320	141,065
Brazil	585,648	42,947	658,784	42,762
Uruguay	337,904	27,349	333,760	28,484
Argentina	1,604,512	151,582	2,170,224	200,558
Other foreign countries	2,610,720	212,253	2,741,760	197,893
Total	36,994,384	2,422,933	45,629,248	2,816,750
British possessions—				
Cape of Good Hope	9,266,656	480,601	9,416,176	487,073
Natal	2,943,248	183,710	2,468,704	159,475
Bombay	9,622,032	464,182	11,407,088	527,567
Madras	4,608,688	216,185	6,345,248	278,349
Bengal	4,363,296	262,553	5,589,248	306,161
Burma	1,035,104	51,580	1,623,888	74,594
Straits Settlements	1,399,552	85,918	1,321,824	73,562
Ceylon	1,823,360	112,153	2,113,888	124,655
Hongkong	744,464	40,168	924,224	52,198
Western Australia	1,191,344	70,978	1,327,424	74,360
South Australia	2,087,232	110,800	2,380,336	119,988
Victoria	9,150,288	480,294	16,057,440	633,672
New South Wales	10,535,280	546,055	14,065,856	652,242
Queensland	1,668,016	101,875	2,291,072	127,342
Tasmania	429,184	19,700	337,008	18,945
New Zealand	8,976,576	515,757	11,770,416	636,592
Canada	5,964,000	360,505	8,193,024	492,976
British West Indies	569,408	44,903	604,912	45,833
Other British possessions	1,428,896	122,636	1,934,352	142,372
Total	77,806,624	4,270,553	100,172,128	5,027,956
Grand total	114,801,008	6,693,486	145,801,376	7,844,706

BERMUDA.

IMPORTS (SPECIAL), CALENDAR YEAR 1905.

Imported from—	Quantity.	Value.
Paper and stationery:	*Pounds.*	
United Kingdom		$6,891
Canada		5,047
United States		12,648
Total		24,586

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

CANADA.

IMPORTS (SPECIAL), YEARS ENDING JUNE 30, 1906, AND MARCH 31, 1908.

Imported from—	Year ending June 30, 1906.		Year ending Mar. 31, 1908.	
	Quantity.	Value.	Quantity.	Value.
Wood pulp:	*Pounds.*		*Pounds.*	
Austria				$787
Sweden				958
Great Britain		$878		
Germany		31		396
United States		50,670		56,416
Total		51,579		58,557
Printing paper of not greater value than 2½ cents per pound, O. C.:				
Great Britain			10,270	275
United States	244,638	5,594	52,895	1,218
Total			63,165	1,493
Printing paper not elsewhere specified:				
Great Britain	2,491,560	148,732	3,394,997	199,501
Belgium			2,750	134
China	1,700	103	100	7
France	3,000	229	1,501	67
Germany	73,514	5,749	25,822	1,434
Netherlands	18,024	1,194	10,505	709
Japan	1,104	255	100	24
United States	5,928,155	359,161	4,286,519	282,966
Total	8,517,857	515,555	7,722,294	484,842
RECAPITULATION.				
Wood pulp		51,579		58,557
Printing paper of not greater value than 2½ cents per pound, O. C.	244,638	5,594	63,165	1,493
Printing paper, not elsewhere specified	8,517,857	515,555	7,722,294	484,842
Total	8,762,495	572,728	7,785,459	544,892

EXPORTS (SPECIAL) YEAR ENDING MARCH 31, 1908.

Exported to—	Quantity.	Value.
Printing paper: [a]	*Pounds.*	
Great Britain		$922,278
Australia		680,604
British Africa		90,355
British West Indies		6,415
Newfoundland		6,461
New Zealand		203,455
Argentina		22,776
Brazil		3,210
Chile		15,445
Cuba		30,003
Netherlands		6,542
Japan		10,684
Mexico		5,576
Peru		11,707
Philippine Islands		6,510
Uruguay		9,854
United States		791,533
Venezuela		6,359
All other countries		3,768
Total		2,833,535

[a] No official data for printing paper exported during 1906.

NOTE.—The 1907 trade figures of Canada, relating to the period of nine months ending March 31, 1907, have been omitted.

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

CANADA—Continued.

EXPORTS (SPECIAL), YEAR ENDING JUNE 30, 1906, AND MARCH 31, 1908.

Exported to—	Year ending June 30, 1906.		Year ending Mar. 31, 1908.	
	Quantity.	Value.	Quantity.	Value.
Wood pulp:	*Cords.*		*Cords.*	
Great Britain		$998,702		$485,199
New Zealand		1,258		
France		46,337		5,497
Newfoundland				120
Japan		5,329		
Belgium				1,506
Mexico		6,896		
United States		2,419,628		3,545,530
Total		3,478,150		4,037,852
Wood, blocks and other, for pulp:				
United States	614,286	2,649,106	901,861	4,655,371
RECAPITULATION.				
Printing paper				2,833,535
Wood pulp		3,478,150		4,037,852
Wood, blocks and other, for pulp		2,649,106		4,655,371
Total		6,127,256		11,526,758

NEWFOUNDLAND.

IMPORTS (GENERAL), YEAR ENDING JUNE 30, 1906.

Imported from—	Quantity.	Value.
Printing paper:	*Pounds.*	
United Kingdom		$2,450
Canada		29,924
United States		19,410
Total		51,784

COSTA RICA.

IMPORTS (GENERAL), CALENDAR YEAR 1906.

Imported from—	Quantity.	Value.
Printing paper:	*Pounds.*	
Germany	19,284	$1,015
Belgium	5,007	224
Spain	127,643	31,468
United States	46,881	2,230
Italy	3,239	576
Other countries	13,823	377
Total	215,877	35,900

SAN SALVADOR.

IMPORTS (SPECIAL), CALENDAR YEAR 1904.

Imported from—	Quantity.	Value.
Paper and stationery:	*Pounds.*	
Germany	99,129	$9,905
Austria-Hungary	7,663	433
Belgium	54,765	3,017
China	57	11
Spain	9,052	1,234
United States	20,856	3,867
France	19,370	1,670
United Kingdom	7,551	1,095
Italy	15,044	1,109
Total	233,487	22,341

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

MEXICO.

IMPORTS (GENERAL), YEARS ENDING JUNE 30, 1906 AND 1907.

Imported from—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Paper paste of vegetable fibers in sheets, undyed, including old paper and paper cuttings:	*Pounds.*		*Pounds.*	
Germany	2,434,694	$56,378	2,021,724	$52,243
Austria-Hungary	436,345	11,260	983,693	26,402
Belgium	118,938	2,486	288,362	10,864
Canada	1,363,796	10,285	582,215	7,728
Spain	1,138	72	467	22
United Kingdom	3,885,072	66,438	200,504	5,389
France	542	28	.....	.....
Norway	790,076	14,014	3,449,787	79,209
Russia	684,131	14,940	6,665,144	109,336
Sweden	837,087	13,496	9,900,347	187,489
Switzerland	688,343	15,743	44,794	932
United States	.....	.....	3,209,022	61,328
Total	11,240,162	205,140	27,346,059	540,942
Paper of all kinds, weighing not over 50 grams per square meter:				
Germany	1,460,021	64,845	1,530,531	77,757
Austria-Hungary	147,241	7,790	51,086	3,742
Belgium	18,177	1,282	3,710	385
China	944	114	1,239	111
Spain	784,194	94,977	1,055,057	123,566
United States	1,278,357	67,815	485,077	35,136
France	196,071	10,216	192,036	13,452
United Kingdom	15,538	2,510	10,696	1,379
Guatemala	7	1	.....	.....
Netherlands	4,894	498	792	76
Italy	340,410	19,478	491,778	26,379
Japan	339	21	938	181
Norway	741,564	17,114	329,331	10,220
Sweden	245,028	7,172	340,740	10,473
Switzerland	70,195	2,084	31,719	1,335
Total	5,302,980	295,917	4,524,730	304,192
White paper containing over 40 per cent wood pulp and weighing more than 50 and not over 150 grams per square meter:				
Germany	15,703	765	53,919	2,020
Belgium	2	1	.....	.....
Canada	69,961	1,878	181,171	4,669
Spain	87,498	3,885	50,474	1,992
United States	568,350	18,091	916,938	30,522
France	6,744	283	29,643	1,065
United Kingdom	23,168	654	26,381	1,019
Italy	1,316	167	.....	.....
Norway	7,175	190	9,074	247
Total	779,917	25,914	1,267,600	41,554
White paper containing not to exceed 40 per cent wood pulp and weighing over 50 and not more than 150 grams per square meter:				
Austria-Hungary	.....	.....	22,387	3,212
Germany	224,461	14,317	269,160	20,373
Belgium	22,112	1,526	30,805	2,227
Spain	66	5	.....	.....
United States	417,681	40,878	875,884	69,520
France	12,648	1,550	14,427	2,129
United Kingdom	7,436	971	16,620	1,586
Italy	1,068	152	157	32
China	.....	.....	15	.....
Total	685,472	59,399	1,229,455	99,079

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

MEXICO—Continued.

IMPORTS (GENERAL), YEARS ENDING JUNE 30, 1906 AND 1907—Continued.

Imported from—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Colored paper, dyed in the paste, weighing over 50 and not more than 150 grams per square meter:	*Pounds.*		*Pounds.*	
China			1,155	$57
Germany	44,562	$4,488	39,191	3,471
Austria-Hungary	1,279	56		
Belgium	18,285	549	7,972	920
Spain	9,863	832		
United States	113,453	9,118	224,886	17,786
France	18,278	2,161	9,246	1,019
United Kingdom	181	10	2,893	674
Italy	765	47	2,337	140
Total	206,666	17,261	287,680	24,067
Paper, uncolored, weighing over 50 and not more than 150 grams per square meter:				
Germany	855,965	21,027	958,591	23,217
Austria-Hungary	226,953	4,569	312,709	5,668
Belgium	18,527	169	36,815	684
Cuba	265	12	419	18
China	408	32	636	24
Spain	120,296	7,162	56,346	1,348
United States	610,156	23,776	633,853	28,262
France	120,936	2,388	100,857	863
United Kingdom	9,297	498	26,244	959
Italy	8,571	431	650	33
Norway	500,742	10,865	156,754	4,408
Russia	142,783	2,625		
Sweden	520,075	14,933	61,003	1,623
Switzerland			46	3
Total	3,134,974	88,487	2,344,923	67,110
RECAPITULATION.				
Paper paste of vegetable fibers in sheets, undyed, including old paper and paper cuttings	11,240,162	205,140	27,346,059	540,942
Paper of all kinds, weighing not over 50 grams per square meter	5,302,980	295,917	4,524,780	304,192
White paper containing over 40 per cent wood pulp and weighing more than 50 and not over 150 grams per square meter	779,917	25,914	1,267,600	41,554
White paper containing not over 40 per cent wood pulp and weighing over 50 and not more than 150 grams per square meter	685,472	59,399	1,229,455	99,079
Colored paper, dyed in the paste, weighing over 50 and not more than 150 grams per square meter	206,666	17,261	287,680	24,067
Paper, uncolored, weighing over 50 and not more than 150 grams per square meter	3,134,974	88,487	2,344,923	67,110
Total	21,350,171	692,118	37,000,447	1,076,944

NOTE.—No exports separately stated.

BRITISH WEST INDIES—BARBADOS.

IMPORTS (SPECIAL), CALENDAR YEAR 1905.

Imported from—	Quantity.	Value.
Paper and stationery:	*Pounds.*	
United Kingdom		$18,050
British possessions		1,017
United States		12,444
Total		31,511

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

BRITISH WEST INDIES—JAMAICA.

IMPORTS (SPECIAL), YEAR ENDING MARCH 31, 1906.

Imported from—	Quantity.	Value.
Printing paper:	*Pounds.*	
United Kingdom		$4,794
Canada		97
United States		17,544
Total		22,435

BRITISH WEST INDIES—LEEWARD ISLANDS.

IMPORTS (SPECIAL), CALENDAR YEAR 1905.

Imported from—	Quantity.	Value.
Paper and stationery:	*Pounds.*	
United Kingdom		$10,779
British possessions		1,285
United States		5,893
Other foreign countries		200
Total		18,157

BRITISH WEST INDIES—TRINIDAD AND TOBAGO.

IMPORTS (GENERAL), YEAR ENDING MARCH 31, 1906.

Imported from—	Quantity.	Value.
Paper and stationery:	*Pounds.*	
United Kingdom		$62,827
British North America		2,973
France		23,442
United States		10,040
Other countries		1,625
Total		100,907

BRITISH WEST INDIES—ST. VINCENT.

IMPORTS (SPECIAL), YEAR ENDING MARCH 31, 1906.

Imported from—	Quantity.	Value.
Paper and stationery:	*Pounds.*	
United Kingdom		$1,348
British West Indies		1,056
United States		10
Total		2,414

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

ARGENTINA.

IMPORTS (SPECIAL), CALENDAR YEARS 1905 AND 1906.

Imported from—	1905.		1906.	
	Quantity.	Value.	Quantity.	Value.
Wood pulp for manufacture of paper:	*Pounds.*		*Pounds.*	
Germany	17,112,737	$224,717	20,490,788	$269,077
Austria-Hungary	565,812	7,430	353,045	4,636
United States	964,075	12,659	545,943	7,169
Netherlands	724,904	9,519	1,671,501	21,950
United Kingdom	190,259	2,498	999,323	13,123
Russia	6,551,119	86,026	6,846,394	89,904
Sweden and Norway	4,777,503	62,735	5,710,503	74,986
Other countries			750,957	9,861
Total	30,886,409	405,584	37,368,454	490,706
Printing paper:				
Germany	9,749,585	246,261	8,398,199	220,564
Belgium	445,378	11,489	53,719	1,410
Canada	769,881	17,203	532,135	13,976
United States	6,928,771	191,761	11,074,145	290,843
Italy	10,267	3,296	26,111	685
Netherlands	294,943	7,954	157,424	4,135
United Kingdom	53,861	1,415	549,618	14,435
Sweden and Norway	88,538	2,326	204,867	5,380
Other countries			51,310	1,348
Total	18,341,224	481,695	21,047,528	552,776
RECAPITULATION.				
Wood pulp for manufacture of paper	30,886,409	405,584	37,368,454	490,706
Printing paper	18,341,224	481,695	21,047,528	552,776
Total	49,227,633	887,279	58,415,982	1,043,482

BRAZIL.

IMPORTS (GENERAL), CALENDAR YEARS 1905 AND 1906.

Imported from—	Quantity.	Value.	Quantity.	Value.
Wood pulp for the manufacture of paper:	*Pounds.*		*Pounds.*	
Germany	162,104	$3,298	222,947	$4,063
Great Britain			20,542	620
Austria-Hungary	220,460	4,886	401,325	8,181
Sweden	1,758,768	34,310	2,927,189	63,587
Russia	77,871	1,680	224,719	3,078
All other countries	22,157	446	257,465	3,860
Total	2,241,360	44,620	4,054,187	83,389
Printing paper:				
Germany	11,905,100	416,349	9,653,203	374,408
France	636,543	31,040	742,853	36,047
Great Britain	432,051	19,626	431,962	26,184
United States	1,214,089	37,976	1,153,661	35,747
Italy	411,178	29,238	339,323	19,271
Portugal			375	69
Belgium	2,586,062	112,704	3,405,955	160,925
Austria-Hungary	910,544	36,379	548,204	24,453
Argentina	5,366	199	5,150	297
Switzerland	15,952	502	22,663	608
Netherlands	179,331	6,569	139,322	5,440
Sweden			1,783,402	53,075
Russia	22,131	565	157,095	4,753
Norway			7,166,321	239,881
Canada	168,374	6,019	6,762	180
All other countries	6,305,717	192,681		
Total	24,792,438	889,847	25,556,241	981,338
RECAPITULATION.				
Wood pulp for the manufacture of paper	2,241,360	44,620	4,054,187	83,389
Printing paper	24,792,438	889,847	25,556,241	981,338
Total	27,033,798	934,467	29,610,428	1,064,727

(No exports separately stated.)

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

CHILE.

IMPORTS (SPECIAL), CALENDAR YEARS 1905 AND 1906.

Imported from—	1905.		1906.	
	Quantity.	Value.	Quantity.	Value.
Printing paper:	*Pounds.*		*Pounds.*	
Argentina	1,499	$92	25,794	$962
Great Britain	258,026	12,816	1,426,420	58,180
Germany	1,724,923	85,637	7,035,099	263,282
France	16,182	804	76,389	2,848
Belgium	8,113	403	158,577	5,912
Italy	47,090	2,339	236,289	8,809
Spain	7,738	384	17,262	644
United States	1,999,264	99,265	4,172,845	155,571
Uruguay			3,924	146
Total	4,062,835	201,740	13,152,599	490,354
Paper pulp:				
Germany	890,989	11,765	847,018	8,422
Belgium			7,385	78
Total	890,989	11,765	854,503	8,496
RECAPITULATION.				
Printing paper	4,062,835	201,470	13,152,599	490,354
Paper pulp	890,989	11,765	854,503	8,496
Total	4,953,824	213,235	14,007,102	498,849

BRITISH GUIANA.

IMPORTS (SPECIAL), YEAR ENDING MARCH 31, 1906.

Imported from—	Quantity.	Value.
Paper, including manufactures:	*Pounds.*	
United Kingdom		$29,911
British possessions		1,638
Other foreign countries		4,081
Total		35,630

PERU.

IMPORTS (SPECIAL), CALENDAR YEAR 1905.

Imported from—	Quantity.	Value.
Printing paper:	*Pounds.*	
Germany	889,464	$39,268
Belgium	52,792	2,331
Chile	24,030	1,061
United States	1,825,945	80,614
France	4,081	180
United Kingdom	2,154	92
Italy	7,304	321
Total	2,805,770	123,867

NOTE.—No exports.

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

URUGUAY.

IMPORTS (SPECIAL), CALENDAR YEAR 1903.

Imported from—	Quantity.	Value.
Printing paper:	*Pounds.*	
Germany	2,028,976	$133,227
Argentina	62,168	4,081
Belgium	440,424	28,919
Brazil	348	23
United States	609,803	40,047
France	18,616	1,222
United Kingdom	552,511	36,279
Italy	327,781	21,523
Total	4,040,627	265,321

BRITISH INDIA.

IMPORTS (GENERAL), YEARS ENDING MARCH 31, 1906 AND 1907.

Imported from—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Printing paper:	*Pounds.*		*Pounds.*	
United Kingdom	8,196,832	$390,858	10,765,776	$474,522
Austria-Hungary	3,280,552	103,503	3,017,840	100,255
Belgium	777,616	28,737	1,580,096	53,283
Germany	4,155,648	133,605	7,529,536	225,366
Norway	598,804	18,230	1,190,335	35,920
Sweden	483,504	12,570	870,464	22,627
Other countries	56,336	4,248	153,104	6,752
Total	17,558,352	691,841	25,107,152	919,325

EXPORTS (GENERAL), YEARS ENDING MARCH 31, 1906 AND 1907.

Exported to—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Printing paper:	*Pounds.*		*Pounds.*	
Straits Settlements	53,984	$3,168	7,504	$521
Ceylon	8,624	511	16,240	973
Other British possessions	3,024	234	2,240	136
Siam	.....	.....	2,016	175
Other foreign countries	.....	.....	1,344	102
Total British India	65,632	3,913	29,344	1,907

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

STRAITS SETTLEMENTS.

IMPORTS (GENERAL), CALENDAR YEARS 1905 AND 1906.

Imported from—	1905.		1906.	
	Quantity.	Value.	Quantity.	Value.
Paper and paper ware:	*Pounds.*		*Pounds.*	
United Kingdom		$139,790		$149,165
Hongkong		321,282		391,627
Other British possessions		898		1,531
Germany		19,062		23,122
Belgium		20,700		19,098
Austria-Hungary		208,729		252,778
China		128,883		148,788
United States		47,942		12,108
British India		1,108		967
Other foreign countries		16,404		14,981
Total		904,798		1,014,165

EXPORTS (GENERAL), CALENDAR YEARS 1905 AND 1906.

Exported to—	Quantity.	Value.	Quantity.	Value.
Paper and paper ware:	*Pounds.*		*Pounds.*	
Hongkong		$6,378		$16,678
British North Borneo		6,389		4,108
Sarawak		13,606		11,785
Federated Malay States		122,865		245,009
Other British possessions		9,845		9,498
Dutch possessions		120,962		117,641
Italy		5,402		
Siam		14,024		27,559
Malay Peninsula (native)		5,300		4,012
French possessions		11,380		19,725
Philippine Islands		6,087		4,746
Other foreign countries		5,054		34,474
Total		327,292		495,235

CEYLON.

IMPORTS (SPECIAL), CALENDAR YEAR 1904.

Imported from—	Quantity.	Value.
Printing paper:	*Reams.*	
United Kingdom	31,289	$47,568
British India	556	553
Austria-Hungary	2,938	2,925
Belgium	915	847
France	50	22
Germany	10,401	10,132
Netherlands	292	148
United States	836	362
Total	47,277	62,557

IMPORTS (SPECIAL), CALENDAR YEAR 1905.

Paper, printing and writing:		
United Kingdom	66,066	$96,848
British possessions	4,165	1,890
Germany	13,611	12,636
Italy	17,840	5,346
Austria-Hungary	23,789	11,751
Other foreign countries	3,235	2,057
Total	128,706	130,528

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

SIAM.

IMPORTS (GENERAL), CALENDAR YEAR 1906.

Imported from—	Quantity.	Value.
Writing and printing paper:	*Pounds.*	
United Kingdom	177,630	$52,223
Germany	46,823	13,766
Austria-Hungary	28,267	8,310
Straits Settlements	14,114	4,150
Italy	8,553	2,515
Belgium	7,611	2,238
Sweden	4,222	1,241
India	3,149	926
Hongkong	1,199	353
Norway	1,569	461
Spain	906	266
Switzerland	754	222
China	100	29
United States	191	56
Total	295,088	86,756

IMPORTS (GENERAL), YEARS ENDING MARCH 31, 1907, AND 1908.

[Entered only by value.]

Imported from—	1907.	1908.
Paper, unprinted:		
Singapore	$4,068	$6,849
Hongkong	2,026	23,926
United Kingdom	52,072	54,409
Germany	14,508	12,666
Austria	8,700	10,230
China	3,313	48,118
Belgium	2,579	410
Italy	2,097	1,443
Sweden	1,364	.....
India	1,138	622
Norway	397	.....
Japan	313	142
Switzerland	276	.....
France	50	170
All other countries	39	916
Total	92,940	159,001
Paper, printed:		
Singapore	.....	360
Hongkong	.....	2,333
United Kingdom	.....	3,626
Germany	.....	470
China	.....	4,959
India	.....	820
Japan	.....	135
Burmah	.....	111
United States	.....	25
Total	.....	12,839
Paper manufactures, not enumerated:		
Singapore	3,927	2,180
Hongkong	17,555	6,967
United Kingdom	8,181	5,618
Germany	6,649	3,164
China	43,404	6,371
Belgium	11,657	6,860
France	5,330	2,976
Austria	2,306	405
India	1,868	1,048
Italy	1,782	1,418
Switzerland	1,612	753
Denmark	1,250	524
Japan	375	888
Sweden	130	.....
All other countries	18	161
Total	106,053	39,333
RECAPITULATION.		
Paper, unprinted	92,940	159,001
Paper, printed	.....	12,839
Paper manufactures, not enumerated	106,053	39,333
Grand total	198,993	211,173

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

CHINA.

IMPORTS.

Imported from—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value
Paper (by quantity):	*Pounds.*		*Pounds.*	
Hongkong	21,125,601	$944,296	13,750,666	$613,198
United Kingdom	2,934,133	146,906	3,326,266	151,661
Denmark	779,333	33,713	4,398,933	160,857
Germany	5,303,866	225,220	6,385,866	220,942
Belgium	966,533	43,130	1,777,601	75,098
Austria-Hungary	5,974,533	251,838	4,449,066	173,644
Japan, including Formosa	16,977,866	1,002,708	12,005,067	669,046
Korea	160,401	26,774	86,666	16,118
United States	431,866	14,208	43,201	1,860
Other countries	606,401	29,811	2,948,534	117,864
Total	55,260,533	2,778,764	49,171,866	2,209,973
Paper (by value):				
Hongkong		21,302		47,968
Singapore, Straits, etc.		10,579		1,901
United Kingdom		144,696		95,452
Germany		26,337		31,129
Belgium		8,766		13,112
France		5,513		1,076
Austria-Hungary		41,436		5,168
Korea		2,260		453
Japan		226,643		199,093
United States		112,327		22,222
Other countries		2,958		3,054
Total		602,817		420,688
RECAPITULATION.				
Paper (by quantity)	55,260,533	2,778,764	49,171,866	2,209,973
Paper (by value)		602,817		420,688
Total	55,260,533	3,381,581	49,171,866	2,630,661

EXPORTS.

Exported to—	1906.		1907.	
	Quantity.	Value.	Quantity.	Value.
Paper:	*Pounds.*		*Pounds.*	
Hongkong	15,124,533	$875,584	15,534,266	$938,394
Macao	2,642,533	187,460	2,646,534	179,064
French Indo-China	4,935,066	334,628	6,194,133	442,966
Siam	3,066,266	226,293	2,850,134	215,345
Singapore, Straits, etc.	6,797,333	676,674	6,758,266	661,502
Dutch Indies	491,600	66,676	570,266	74,894
Russia, Pacific	1,194,400	93,366	175,201	18,018
Korea	104,933	6,866	160,534	9,692
Japan (including Formosa)	1,965,333	164,635	1,274,534	103,665
Philippine Islands	260,133	16,357	249,466	15,088
Other countries	111,200	7,901	126,666	9,204
Total	36,693,333	2,656,440	36,540,000	2,667,802

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

JAPAN.

IMPORTS, PAPER AND MANUFACTURES OF, YEAR 1907.

Imported from—	Wood pulp.		Printing paper.		All other, and manufactures of.
	Quantity.	Value.	Quantity.	Value.	
	Pounds.		*Pounds.*		
China	57	$2			$74,725
United Kingdom	1,241,650	33,929	8,412,454	$387,881	461,761
France					59,331
Germany	24,612,977	551,686	12,485,029	374,446	969,840
Belgium	511,119	14,520	11,678,585	448,122	129,648
Switzerland			305,992	8,506	2,071
Austria-Hungary	134,021	3,545	4,354,599	152,018	521,481
Netherlands	22,143	632	33,259	1,345	31,462
Sweden	3,138,014	77,440	3,578,606	98,357	122,563
Norway	1,829,411	38,728	1,875,236	52,603	21,412
Denmark	3,362,473	80,815	455,398	12,093	1,526
United States	630,099	18,797	4,059,524	147,513	123,120
Canada			482,564	14,365	567
Other countries	291	8			
Total	35,482,855	820,102	47,721,376	1,697,249	2,519,507

EXPORTS, 1907.

Exported to—	Wood pulp.		Printing paper.		All other, and manufactures.
	Quantity.	Value.	Quantity.	Value.	
	Pounds.		*Pounds.*		
China			1,278,059	$67,801	$940,678
Korea			2,537,270	126,500	326,880
Kwantung Province			538,785	29,664	228,539
Hongkong			62,579	3,427	77,168
Russia, Asiatic			316,716	19,797	47,934
United States					338,397
United Kingdom					224,977
Germany					44,599
France					31,592
Canada					20,049
Australia					25,056
All other countries			53,936	2,073	82,079
Total			4,787,336	249,062	2,387,548

NEW ZEALAND.

IMPORTS (GENERAL), CALENDAR YEAR 1906.

Imported from—	Quantity.	Value.
Printing paper:	*Pounds.*	
United Kingdom	6,982,080	$339,132
Victoria	47,936	2,910
New South Wales	624,176	19,539
Canada	5,517,904	157,894
British Columbia	203,504	5,616
Spain	11,424	306
Austria	16,688	628
Germany	344,288	11,582
Norway	173,152	5,718
Sweden	116,144	3,995
Denmark	1,792	73
Belgium	13,440	808
United States	3,500,560	99,087
Total	17,553,088	647,288

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

NEW ZEALAND—Continued.

EXPORTS (GENERAL), CALENDAR YEAR 1906.

Exported to—	Quantity.	Value.
Printing paper:	*Pounds.*	
New South Wales	16,768	$1,002
Fiji Islands	1,120	88
South Sea Islands	1,120	29
Total	29,008	1,119

PHILIPPINE ISLANDS.

IMPORTS (GENERAL) OF PRINTING PAPER DURING FISCAL YEARS 1907 AND 1908.

Imported from—	Printing paper.			
	1907.		1908.	
	Quantity.	Value.	Quantity.	Value.
	Pounds.		*Pounds.*	
United States	1,605,169	$46,318	1,301,324	$46,787
United Kingdom	189,045	7,213	90,123	3,715
Germany	544,684	17,972	730,921	22,896
France	7,855	204	55	9
Spain	125,442	8,814	109,788	6,897
Italy	7,277	562	1,213	67
Austria-Hungary	215,953	7,202	96,775	2,748
Belgium	12,079	462	61,733	1,813
Netherlands	13,124	463		
Switzerland			20,121	619
China	13,367	438	8,849	290
Hongkong	5,772	244	7	1
Japan	27,293	717	2	1
All other countries	15,977	542		
Total	2,783,037	91,241	2,420,911	85,843

AUSTRALIA.

IMPORTS (SPECIAL), CALENDAR YEAR 1906.

Imported from—	Quantity.	Value.
Printing paper (uncoated):	*Pounds.*	
United Kingdom		$907,088
Canada		77,119
Hongkong		5
New Zealand		1,212
Austria		2,263
Belgium		25,510
France		530
Germany		266,047
Netherlands		131
Norway		1,475
South Sea Islands		39
Sweden		1,085
United States		846,995
Total		2,129,449

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

AUSTRALIA—Continued.

EXPORTS (GENERAL), CALENDAR YEAR 1906.

Exported to—	Quantity.	Value.
Printing paper (uncoated):	*Pounds.*	
Fiji Islands		$671
New Zealand		3,808
Norfolk Islands		73
Marshall Islands		19
New Caledonia		399
New Hebrides		5
South Sea Islands		234
Total		5,299

BRITISH SOUTH AFRICA.

IMPORTS, CALENDAR YEAR 1907.

Imported from—	Quantity.	Value.
Wood pulp and wood wool:	*Pounds.*	
United Kingdom		$4,604
Belgium		1,528
Germany		3,698
Netherlands		4,005
Norway		1,110
Sweden		3,942
Other countries		10
Total		18,897
Printing paper:		
United Kingdom		396,970
Dominion of Canada		92,716
Austria		2,730
Belgium		7,207
France		2,253
Germany		29,968
Netherlands		1,470
Italy		196
Norway		3,197
Russia		78
Sweden		8,867
Switzerland		54
United States		3,747
Total		549,442
RECAPITULATION.		
Wood pulp and wood wool		18,897
Printing paper		549,442
Total		568,339

CAPE OF GOOD HOPE.

IMPORTS (SPECIAL), CALENDAR YEAR 1905.

Imported from—	Quantity.	Value.
Printing paper:	*Pounds.*	
United Kingdom		$331,452
British possessions		2,229
Germany		39,292
United States		10,103
Other foreign countries		2,862
Total		385,938

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued.

CANARY ISLANDS.

IMPORTS (GENERAL), CALENDAR YEAR 1906.

Imported from—	Quantity.	Value.
Paper in rolls, all sorts, weighing not over 20 grams per square meter:	*Pounds.*	
Spain	8,492	$1,256
Germany	22,957	3,396
Belgium	1,102	163
France	176	26
Italy	217	33
Total	32,944	4,874
Paper in rolls, all sorts, weighing 21 to 40 grams per square meter:		
Spain	32,344	2,879
Germany	20,243	1,790
France	505	45
United Kingdom	2,359	209
Italy	377	33
Norway	10,260	907
Total	66,088	5,863
Paper in rolls, all sorts, weighing 41 to 50 grams per square meter:		
Spain	13,261	720
Germany	16,698	906
Belgium	2,727	148
United Kingdom	9,290	504
Norway	11,072	601
Total	53,048	2,879
Paper in rolls, all sorts, weighing 51 to 100 grams per square meter:		
Spain	10,399	919
Germany	2,855	252
Belgium	992	88
France	1,014	90
United Kingdom	57	5
Portugal	82	8
Total	15,399	1,362
RECAPITULATION.		
Paper in rolls, all sorts, weighing not over 20 grams per square meter	32,944	4,874
Paper in rolls, all sorts, weighing 21 to 40 grams per square meter	66,088	5,863
Paper in rolls, all sorts, weighing 41 to 50 grams per square meter	53,048	2,879
Paper in rolls, all sorts, weighing 51 to 100 grams per square meter	15,399	1,362
Grand total	167,479	14,978

TUNIS.

IMPORTS (GENERAL), CALENDAR YEAR 1905.

Imported from—	Quantity.	Value.
Printing paper:	*Pounds.*	
France	885,193	$28,060
Algeria	1,989	125
United Kingdom	234	13
Austria-Hungary	13,426	303
Belgium	25,908	004
Italy	24,328	1,286
Germany	3,355	103
Total	954,493	30,494

EXPORTS (GENERAL), CALENDAR YEAR 1905.

Exported to—	Quantity.	Value.
Cellulose:	*Pounds.*	
France	57,600	$1,183

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Statement showing trade in wood pulp, cellulose, and other articles used in the manufacture of paper, and paper manufactures, by principal countries of the world, excluding the United States, for the latest available years from official sources—Continued

EGYPT.

'PORTS (SPECIAL), CALENDAR YEAR 1907.

Imported from—	Quantity.	Value.
Printing and writing paper:	*Pounds.*	
United Kingdom		$130,777
British possessions in Far East		54
Germany		88,934
America		692
Austria-Hungary		184,652
Belgium		4,478
France and Algeria		57,399
Greece		143
Italy		43,849
Turkey		94
Other countries		36,059
Total		547,131

NOTE.—No quantities stated

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PULP AND PAPER INVESTIGATION HEARINGS

TIMBER RESOURCES AND WATER POWERS OF CANADA

SELECT COMMITTEE OF HOUSE OF REPRESENTATIVES

JAMES R. MANN, Illinois, *Chairman*

JAMES M. MILLER, Kansas
HENRY T. BANNON, Ohio
WILLIAM H. STAFFORD, Wisconsin
THETUS W. SIMS, Tennessee
WILLIAM H. RYAN, New York

NO. 37

WASHINGTON
GOVERNMENT PRINTING OFFICE
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WOOD PULP, PRINT PAPER, ETC.

MEMORANDUM ON COMMITTEE'S VISIT TO CANADA, NOVEMBER, 1908.

On Saturday, November 21, 1908, the committee visited some of the holdings of the New York and Pennsylvania Company near its Johnsonburg plant for the purpose of observing the method of cutting followed and of conservation, as had been testified to by its superintendent of forestry the day before. Several small trees were cut to ascertain their age, and special attention was given to their plan of cutting only the mature timber, and leaving the young standing to replenish and furnish a continuous standing growth.

From Johnsonburg the committee proceeded to Toronto, Ontario, which it reached on Sunday, November 22. Aided by Consul R. S. Chilton, jr., who rendered valuable service in introducing prominent Canadian individuals and officials to the members and who was in constant attendance upon all occasions, the committee held a number of conferences. Among those interviewed were Mr. G. A. Howell, broker in pulp wood; Mr. J. L. Englehart, chairman of the Temiskaming and Northern Ontario Railway Commission; Sir James Whitney, premier of Ontario; Hon. F. Cochrane, minister of lands, forests, and mines; Hon. Aubrey White, deputy minister of lands, forests, and mines; Prof. B. E. Fernow, dean of forestry, University of Toronto; William Banks, jr., city editor of the Toronto Globe.

From these gentlemen, who were courteous and cordial, a considerable amount of information was obtained. A number of valuable government documents and maps were presented to the committee.

On November 24, 1908, the committee went 360 miles north of Toronto to Englehart, New Ontario, the present regular terminus of the Temiskaming and Northern Ontario Railway. Along this railroad for a distance of a hundred miles spruce is the prevailing timber. Care is taken by the government and by the railroad to prevent fires, and yet on the trip from North Bay to Englehart it was seen at various places that fire had devastated some of the forests.

At Englehart the committee walked for several miles through the forests, which are being worked for saw timber and pulp wood and being cleared for farming. Besides spruce, cedar, balsam, birch, and jack pine were seen. The effects of fire were visible everywhere. It was ascertained that pulp wood has been selling in 1908 for $3.50 to $3.75 per cord. In 1907 the price was $5 to $7.

The following day, the 25th of November, a drive on runners was taken to inspect the timber in the outlying country.

On November 26 the committee reached Ottawa, where conferences were held with Deputy Consul H. M. Sanford; Hon. R. H. Campbell, superintendent of forestry, department of the interior;

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Hon. James White, geographer, department of the interior; Hon. A. P. Low, director of the geological survey; Prof. John Macoun, botanist, of the geological survey; J. R. Booth, paper manufacturer; Hon. R. E. Young, superintendent of railway and swamp lands; William Pearce, explorer.

The paper mill of J. R. Booth was also visited.

As in Toronto, the committee was shown every respect and courtesy, and received considerable information, oral and printed.

From the interviews held the following statement regarding the forests of Canada, which subject was made the special point of inquiry by the committee, may be drawn. The opinions and judgments, which were expressed in informal conversation, are those of individuals conceded to be authorities, and the following is a résumé or potpourri of those opinions:

It is difficult to obtain accurate information concerning the forests of Canada as a whole, because of the vast amount of territory which has never been explored, especially in the north. In the Province of Ontario three-fifths has not been surveyed. In 1900 it was estimated that there were in that Province 300,000,000 cords of marketable spruce. It was expressed by one prominent official that this amount has not diminished and that the figures are an underestimate. Another estimate was that in northern Ontario alone there is now 275,000,000 to 300,000,000 cords of timber of 4 inches and over. On the other hand, it was stated that the country of northern Ontario is largely muskeg, which grows little but black spruce, generally considered worthless, one cutting ending what value there is for two hundred to three hundred years. Ontario, it is believed, will never be the best pulp-wood territory. Quebec is the stronghold, where large quantities of white spruce exist. In 1904, 400,000 to 500,000 cords of wood were exported. Even with such an amount leaving the country, some believe that the supply is inexhaustible, while others urge that all estimates of timber are much too high.

In the eastern part of the Dominion it may be said in general that the tendency is for the timber not to be confined to the river valleys, it being found in solid sections. This is in contradistinction to the west and north, where, so far as explorations have been made, the large timber skirts along the streams to the width of a mile or two, when the muskeg comes in to fill up the intervening country.

Of the country east of Hudson Bay there seems to be little doubt that the upper third is treeless.

Large areas of northwest Canada have been burned. An estimate that 50 per cent of that territory has suffered from fire was given. The Indians burned the forests in order to allow a new growth which provides feeding for wild animals. In Manitoba and Saskatchewan there is good timber in sections. One strip in the latter Province runs north 400 miles. Between Lake Winnipeg and James Bay large spruce (as large as 3 feet) is found along the rivers. Between the rivers lie muskeg regions, which produce only black spruce. It is generally agreed that the meager growth on the muskegs is due to the cold and wet condition of the decomposed vegetable matter forming them. The opinion is that draining this territory would only cause it to burn all the more readily upon becoming dry.

On the Peace and Athabasca rivers there is fine spruce. Thirty years ago one renowned explorer saw black spruce 3 feet in diameter.

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This observation is vouched for by later explorations. Black spruce grows larger as one goes west and north, as also does balsam, poplar, and aspen. In the country drained by the Athabasca River the larger percentage of the land is more suitable for timber than anything else. Twenty to 30 per cent of the territory is muskeg. Among the lumber companies of the northwest are the Burroughs mill in Manitoba, which has a daily capacity of 200,000 feet, and the Prince Albert Company in Saskatchewan with a daily capacity of 300,000 feet. In the western provinces, spruce, as well as aspen and balsam, has been cut for thirty years.

On the eastern slope of the Rocky Mountains there is a strip 30 miles wide running 400 miles north of the international boundary, of which 50 per cent of the timber is poplar and jack pine, the rest spruce. All is claimed to be accessible and could be made a perpetual supply.

In Alberta there are solid forests of large aspen. This section is called the home of the aspen.

There is no white or red pine north of the divide.

It is estimated that there are 6,000,000 acres of Pacific coast timber, and in British Columbia 15,000,000 acres of forest land. Fir exists in large quantities. It was stated that there is more fir than spruce in Canada.

As regards the amount of spuce in the country, this statement was made: If fires have not destroyed the timber to an extent where reproduction is not set back centuries, with the present policy of protection, the extent of forest area is sufficient to furnish the supply for ground wood.

The one chief means of preserving the forests was declared to be to prevent fires. Upon timber lands under license in Ontario there is fire protection. The government bears half the expense of maintaining fire rangers. On freehold lands there is no protection. In the northwest country around the Athabasca River the government employs rangers.

Some little attempt is being made at reforestation. In Manitoba, Saskatchewan, and Alberta farmers are planting trees. The government has a regular nursery station at Indian Head and farmers are supplied with stock free of charge. The kinds used are the box elder, or Manitoba maple, and cottonwood seedlings, which are brought from North Dakota. During the last three years 100,000 small trees were imported from Germany by the Agricultural College in Ontario at a total cost, including freight, of $80.

MEMORANDUM CONCERNING AGE AND SIZE OF TREES AT ENGLEHART, NORTHERN ONTARIO.

Nine-inch spruce, 80 years, in mixed forest; 8-inch spruce, 70 years, in mixed forest; 7-inch spruce, 51 years, on good clay land; 10-inch spruce, 110 years, on good clay land; 7-inch spruce, 44 years, on good clay land; 6-inch spruce, 34 years, on good clay land; 8-inch spruce, 49 years, on good clay land; 12-inch spruce, 78 years, on good clay land; 8-inch spruce, 42 years, on good clay land.

The following measurements were made on land which had been burned over and upon which second growth of spruce had come up thick: Five-inch, 32 years; 5-inch, 33 years; 4-inch, 35 years; 3-inch, 34 years; 2½-inch, 31 years; 2-inch, 22 years.

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The following papers, letters, statistics, and information were obtained on the visit of the committee to Canada, or were furnished later upon request:

AN ANALYSIS OF CANADA'S TIMBER WEALTH.

[A Preliminary Study, B. E. Fernow.]

The vast territory of the Dominion of Canada, with over 3,500,000 square miles, covers an area larger than the United States and not less than the whole of Europe, extending over 20 degrees of latitude from the forty-ninth degree, that of Rome, to the North Pole, and through 85 degrees of longitude, over 3,000 miles across the continent along the boundary line. With only about 6,000,000 inhabitants, more than five-sixths living in the eastern provinces, it is natural that large areas remain still entirely unexplored, and other areas are still so little known that it would appear hazardous to venture very definite statements as to the timber resources of this large territory. If the writer nevertheless attempts this task after only a brief year of occupation with the subject and a few hasty reconnaissances, he does so with the full realization that the details of his conclusions may have to be modified on closer acquaintance. He has, of course, utilized what information is available, which is very scanty and often tinged by patriotic tendencies to magnify, but he relies largely on a study of the geological and climatic conditions which are either of record or can be readily conjectured, and which predicate forest types and forest conditions.

Comparing Canada with the United States in their forest conditions two facts at once impress themselves, namely, the greater variety of forest types and the greater extent of continuous valuable timber areas in the latter. No such thing as the extensive southern pineries, in which almost every acre contains merchantable material, is to be found in Canada, and no such variety of species of value is to be found as the forests of the United States offer.

Everything is simpler in Canada, as its geology and topography and its entirely northern climate would lead one to expect, and her limited areas of merchantable saw material are distributed through a large area of inferior growth; the commercial timber occurs mainly in "patches." And we may say at once, that while perhaps a larger area than of the States exhibits woodland conditions, the commercial timber area, actual and potential, is decidedly smaller.

Floristically, we may differentiate, as in the States, the Atlantic and Pacific forest, but while in the States the prairie and plains country separates these two types effectually, in Canada the forestless country extends only 300 miles from the boundary north, with a base of 800 miles at the boundary, narrowed to 400 miles in its northern limit, and the Atlantic forest extends beyond about the fifty-second degree across the continent to the Rocky Mountains and to the mouth of the Mackenzie River, and beyond into Alaska. Indeed, along the Rocky Mountains on a limited area the boundaries of the eastern *Pinus divaricata* and the western *Pinus contorta murrayana* overlap and other species of the two floras associate here over considerable areas.

Toward the north the number of species as well as individual development is more or less gradually reduced, and finally, another treeless or forestless area is reached, the "barrens" or "tundra;" the northern limit of trees being described by a sinuous line from Fort Churchill to the mouth of the Mackenzie River, and on the Ungava side of Hudsons Bay by a line running close to the fifty-eighth degree from Nastapoka River to nearly the south shore of Ungava Bay and along the treeless coast of Labrador.

Forest flora.—A census of the tree species of Canada develops in all precisely 150 species and varieties as now recognized, of arborescent form, of which 32 are conifers, namely, 10 pines, 5 spruces, 4 firs, 3 each hemlocks and larches, 2 each juniper and cedar, and each yellow cedar, red fir, and yew. Twenty of these conifers belong to the Pacific flora, while of the broad-leaf type only 25 of the 118 are found there. All of the species, except a few minor ones, are also found in the United States.

Altogether, coniferous growth is prevalent, even in the Atlantic forest, most of the hardwood species finding their limits in the southern portions of the eastern provinces, and only a few species growing northward.

If an economic point of view be applied, taking into consideration either frequency of occurrence, high usefulness, or capacity of development to timber size, we may list the following 66 species for the two geographical regions; those once or twice underscored according to their importance, representing the 44 more prominent ones:

ATLANTIC FLORA.—*Abies balsamea; Larix americana; Picea canadensis; mariana; Pinus strobus, resinosa, divaricata; Thuya occidentalis; Tsuga canadensis; Acer saccharum, rubrum; Betula lutea, papyrifera; Castanea dentata; Celtis occidentalis; Fagus atro-*

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punicea; Fraxinus americana, pennsylvanica, nigra; Gleditsia triacanthos; Gymnocladus canadensis; Hicoria ovata, minima, alba, glabra; Juglans cinerea, nigra; Liriodendron tulipifera; Magnolia acuminata; Nyssa silvatica; Platanus occidentalis; Populus balsamifera, deltoides, grandidentata, tremuloides; Prunus serotina; Quercus alba, prinus, macrocarpa, acuminata, platanoides, rubra, velutina, coccinea: Sassafras sassafras; Tilia americana; Ulmus americana, fulva, thomasi.

PACIFIC FLORA.—*Abies grandis, amabilis, lasiocarpa; Chamaecyparis nootkatensis; Larix occidentalis; Picea engelmanni, sitchensis; Pinus ponderosa; Pseudotsuga mucronata; Thuya plicata; Tsuga heterophylla; Acer macrophyllum; Alnus oregana; Arbutus menziesii; Fraxinus oregona; Populus trichocarpa, angustifolia.*

The importance of the specie is, to be sure, an uncertain character. As timber producers, on the west coast Douglas fir and giant cedar, with hemlock, yellow cedar, and Sitka spruce and some fir and Engelmann spruce are at present only serviceable. In the Rocky Mountains, bull pine and larch are most prominent. In the east, the finer hard woods are mostly cut out, elm, basswood, yellow birch, more rarely ash and red oak are still plentiful, and paper birch abounds. Of the conifers, white and red pine, with hemlock, are the main producers. White spruce and balsam fir in large amount form the main value of the eastern forest. Such species as *Pinus murrayana* and *Pinus divaricata, Picea mariana, Populus balsamifera,* and *tremuloides* are important, because they cover vast areas and form a not insignificant source of local supply of wood. Balsam poplar and the two jack pines mentioned seem to develop in the more northern field of distribution; indeed their center of distribution seems to be found in the upper Mackenzie Valley

The two eastern spruces are the most northern species up to timber line, and the white spruce extends its field into the Rocky Mountain flora, while the lodge-pole pine, covering large areas of dry slopes, enters the field of the eastern flora in its extension into Alaska. The Alpine fir (*A. lasiocarpa*) and Patton's hemlock, with *Larix lyallii*, are the main Alpine trees of the Rockies and the Coast Range. Engelmann spruce and *Abies grandis* are found only scattered, but *Abies amabilis* is forest-forming in the higher altitudes of the Coast Range, while Sitka spruce and tideland hemlock form almost by themselves the northern coast forest.

Forest types.—Taking together into consideration geological formation, soil, climate, and floral composition, we may conveniently divide the whole wooded area into 4 broad geographical types, which again may be divided into 12 regional types, within which, of course, many local types may be recognized.

The Height of Land, a low ridge or succession of ridges rarely over 1,500 feet in height—the watershed between Hudson Bay and the St. Lawrence, including the Great Lakes—forms for the most part the northern limit of the eastern forest, and within this area is confined the commercial timber of the east. The northern forest forms the second type and extends north and west of this line to the Rocky Mountains, which form the third geographical type, from which the coast forest is differentiated as the fourth type.

The eastern forest may be subdivided into five regional types, which we may designate as the Acadian, the upper, middle, and lower St. Lawrence, and the southern Laurentian.

The Acadian type comprises the maritime provinces, with the eastern townships of Quebec south of the river added. This area, being geologically a continuation of the Appalachians, the forest represents the same type as the Maine or northern New England type, a birch-maple-beech hard-wood base with coniferous admixture, which on the higher slopes and plateaus may become pure. Originally white pine, at present white and red spruce with balsam fir, form the valuable part of the composition.

The St. Lawrence Valley can be distinctly divided into three types. The peninsula of Ontario, located between Lakes Huron and Erie, to the west of Lake Ontario, enjoys, on account of the lake influence, a milder climate than other parts of eastern Canada and besides, being formed by glacial deposits upon limestone formations, excels in fertile soils, able to support a rich hard-wood forest. Here we find an extension of the southern hard-wood flora of oaks, hickories, tulip tree, ash, and black walnut, besides elm and maple, all in magnificent development where any of them are left, and a number of other species like sycamore, sassafras, Kentucky coffee tree, honey locust, chestnut, which find their northern limit here. The absence of spruce and balsam and the minor occurrence of pine and hemlock reminds one of the Ohio forests. Here is the garden spot of Canada, here on an area of 18,000 square miles lives half the population of Canada, and practically all the commercial timber is cut away to give room to farms, and many farms being even without wood lots, so that, a few years ago, in consequence of the anthracite coal strike, a fuel famine was experienced.

The middle St. Lawrence Valley includes the shore of Lake Ontario east of a line

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drawn from Toronto to Midland on the Georgian Bay, and toward the north limited by a line drawn from the Georgian Bay to the Thousand Islands, and the river valley, east of a line from Belleville to Arnprior, narrowing from a width of 75 miles to less than 30 miles at a point south of Quebec. This is also glacial and river deposit, perhaps not quite so rich as the peninsula and certainly different in climate, the influence of the large continental area to the northwest being felt in a wider range of temperatures and lower rainfall and humidity.

It is still a hard-wood type, but reduced in variety, the species mentioned before as finding their northern limit on the peninsula being ruled out by the climatic change. This region, too, is nearly cut out to make room for farms.

The lower St. Lawrence Valley from Quebec north narrows down to still smaller width, the fertile land extending from 6 to 20 miles at most alongside the river. The climate, still more rigorous, rules out again a number of species, among which the white oak, burr oak, beech, basswood, and butternut, and soon also the hemlock and red pine disappear. The characteristics of the Arcadian conifer type on one side and of the northern forest on the other are more and more approached.

North of the St. Lawrence Valley drift there extends a vast area formed of the Archean rocks of the Laurentian period—the Laurentian plateau—the oldest land of this continent, a rocky country, topographically little diversified, the thin soil collected in pockets only occasionally of sufficient depth and richness for farm use.

On the southern slope of this "Laurentian Shield" south of the Height of Land is located the true commercial forest area of eastern Canada, a country fit mainly for forest use. If we take the white pine as the most important timber, this area is still further confined in its eastern portion, for while in the western portion the northern limit of this pine very nearly coincides with the Height of Land in the east the limit of its occurrence is climatically still further limited and lies far south of the Height, namely, on a line from the headwaters of the Gatineau to Seven Islands, in the Gulf of St. Lawrence.

This is a country of lakes and swamps alternating with low hills and plateaus, most variably forested, although the flora is limited to few species. It would be difficult to pick the leading species in this territory of approximately 150,000 square miles extent. There is still a hard-wood basis, in which maple, elm, basswood, and paper birch, with beech, red oak, yellow birch, ash, balm of Gilead, besides the ever-present aspen on burned areas, play a part. Of the conifers balsam fir is probably numerically the most frequent, with white spruce a close second, and in the swamps the almost useless black spruce is prominent, with the more valuable white cedar and tamarack, according to the character of the swamp. White pine and hemlock, the two most valuable species, and the red pine occur much more localized, mainly along the waters and on the better-drained sandy hills. A century of logging has removed the accessible pine very nearly, and, while it is impossible to make even a guess of the amount still standing, the fact that hemlock is cut in ever increasing amounts sheds light on the situation. The Ontario portion of this area has always been reputed to be better stocked with this class of timber than the Quebec portion. Yet the government officials, claiming on the unlicensed territory—which, by the way, in Ontario comprises still 140,000 square miles—10 to 12 billion feet of standing white pine (or one-third of the annual consumption of coniferous material in the United States), seem to think this is a large amount.

Those who realize that the commercially available and accessible saw timber is near exhaustion point to the enormous amount of pulp-wood material as the value for the future. There are undoubtedly large and, for the present, unmeasured amounts, but it should also be realized that a large portion of this, perhaps more than 50 per cent, is balsam fir, which, although according to the writer's contention superior to spruce for pulp, is not advantageously floated, and since the rivers are the only means for getting it out at present and probably for a long time to come, it will remain unavailable until other values invite railroad development.

The cut-over lands are treated no better or worse than in the States. Fire sooner or later ravages them, and on the thin siliceous soil destroys not only the young growth but the mold; the waters soon wash the soil and the bare rock comes to view. Thousands of square miles have been and are being burned over repeatedly, and while the aspen and the banksian pine struggle to keep the forest cover the value is gone. The characteristic attitude of the authorities to this spoliation policy is exhibited in the declaration of a high official in charge of timber lands that the extensive fires of the last season did not do much damage since they occurred mostly on cut-over lands.

Beyond the Height of Land the northern or subarctic forest begins. Although white and red pine are still found overlapping along the upper river courses, and although aspen, balsam poplar, and paper birch are frequent accompaniments and sometimes sole occupants of the soil, the general type may be described as spruce

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forest, the white and black spruce being by far the predominant species. While the eastern portion of this region lies on the old granite rocks, its western extension lies on limestone formation. With a climate still more rigorous than in the last-described region and with still less topographical differentiation, it stands to reason that on this northern slope of the Laurentian Plateau not only a reduction in the number of species to eight—besides those just mentioned only the banksian pine, balsam fir, and the tamarack take part in its composition—but reduction in development of individuals and of the whole forest is experienced.

This vast territory, comprising about 1,500,000 square miles, has for the most part been only superficially explored, and the explorations have followed mostly the river courses. Recently a compilation of the meager reports on timber conditions by the explorers, from Hearne (1770) to Tyrell (1898), has been made and the results as far as practicable have been mapped. The writer is indebted to Mr. R. E. Young, superintendent of railway branch, department of interior, Ottawa, for a copy of this unpublished report and the accompanying map in anticipation of its issue, so that the readers of the Quarterly are the first to secure an insight into the conditions of this vast domain. It would lead us too far to print in full the interesting report, and on the other hand it is difficult to dispose of such a large region in a few words, for variations of the type with change of soil, topography, and climate must after all produce considerable variety over the vast area. Only impressions left from reading the report may be given. In regard to the map, it should be understood that the explorations followed mostly the river courses, and hence the indicated areas should be conceived only as locations not extent of forest areas.

It is a plateau region or rolling plain dotted with thousands of lakes, large and small, and swamps or mossy muskegs in the shallow valleys, with only here and there better drained sandy or rock areas. Temperature conditions are of greatest importance here and it is likely—this only a suggestion by the writer—that different exposures as well as soil depth account for the observed striking local differences of development. The different species occupy different localities, although the spruces are perhaps nearest to being ubiquitous. The black spruce occupies the boggy ground until farther north it, too, prefers the drier situations, and joins the white spruce to the very limit of tree growth. Balsam fir is not common, and with the tamarack at its northern limit leaves the muskeg borders and swamps for drier ground. It is the first species to disappear from the composition in going northward. The banksian pine seems to be the tree to the manner born, for it is the tree of the rocky and sandy situations and yet becomes of better size in its northwestern extension than it is known to attain in its more southern range trees over 100 feet high and 12 to 20 inches in diameter having been observed along the Beaver, English, Athabasca, and Clearwater rivers between latitude 53° and 58°. It, too, gives out in the northern extension of this belt. The balsam poplar and the aspen, which latter occupy almost exclusively a wide belt around the prairie region, are both an accompaniment of the more northern conifer forest. Both of them also improve in habit in their northern field. The aspen in the Riding and Porcupine mountains and westward to Prince Albert and Edmonton becomes a fine tree of 50 to 100 feet in height, with diameters up to 18 inches, and is considered an indicator of good soil. The balsam poplar, too, reaches its greatest perfection on the Athabasca, Slave, Peace, and especially the Lower Liard rivers. Perhaps because they are allowed here to occupy the better soils their development is improved, or else, as analogous observations in the alpine region of Colorado lead the writer to think, at least aspen and banksian pine find their center of distribution in this northern climate. Paper birch is not plentiful, and irregularly distributed, but has a wide range. An interesting island of this species in nearly pure stand occurs near the headwaters of McLeod and Athabasca rivers, after an almost total absence of the species in the more eastern districts.

Regarding the diameter developments noted on the map, it should be kept in mind that the observers were not in most cases timber lookers and naturally noted the striking things, the giants relatively speaking, leaving us open to doubt as to what the generality of condition might be. There are, as a rule, no descriptions given which may allow surmises as to the commercial character of the timber, nor how far the conditions observed from the canoe may be surmised to exist beyond the vision of the observer. The probability is that the sheltered river valleys exhibit the best development, and the plateau-like watersheds, except in the southwestern sections with its milder climate like the Peace and Liard river basins, are usually without forest growth of value.

At any rate, looking at the economic value of these northern woodlands, everybody must agree that their timber, although of inferior character, is of utmost value for home use by the prospective settler and miner, and of no commercial value to our eastern civilization, especially as the direction of down grades is in another direction. That vast areas, probably 50 per cent, are destroyed by fire and are annually burned over must be considered an incalculable loss for the future.

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If an attempt were made to further differentiate this northern forest, we might recognize a northern and southern section, the limit between the two being formed by the northern limit of the balsam fir, which coincides for most of its trend closely with the division line of the "Hudsonian" and "Canadian" life zone lately established by the United States Bureau of Biological Survey.[a] South of this line we may assume, and we know in part, that a better development of forest growth is found more frequently than in the northern section in which the balsam fir is absent and balsam poplar and banksian pine are rare.

As the foothills of the Rocky Mountains are reached by this northern forest, beyond the 52° it still continues northwestward into Alaska and to within a short distance of the Bering Sea and Arctic Ocean. There is, however, a change in the composition—two western species relieving two eastern. The balsam fir is supplanted by *Abies lasiocarpa* and the banksian pine by *Pinus contorta murrayana*.

These latter also mingle in a narrow limited area southward, and the white spruce and American larch also invade the Rocky Mountain flora, while even the Douglas fir from the west descends the eastern slopes for some 30 to 50 miles, joining the eastern flora.

These Pacific forest may regionally and, in part, florally be divided into four types, and topographically at least six types can be differentiated, namely, the northern and southern Rocky Mountain type, the northern and southern coast type, and within each of these the wet and dry slopes and the alpine type.

Temperature conditions divide the British Columbia forest into the two northern and southern and the alpine types. Humidity is the determining factor for the dry and wet types in each of these, and humidity, of course, is predicted by topography.

The topography here being extremely diversified, changes in composition and development are as diversified. West slopes and valleys opening to the west under the influence of the winds from the Pacific Ocean are humid. East slopes and valleys withdrawn from the influence of these winds are dry to arid. An arid interior plateau similar to that east of the Sierras in the States divides the Rocky Mountains proper from the coast ranges.

The southern Rocky Mountain type is an extension of a southern flora, with the bull pine (*Pinus ponderosa*), the silver pine (*Pinus monticola*), Engelmann spruce, and western larch as representative timber trees, with Douglas fir, cedar, hemlock, and lodgepole pine in minor occurrence, to which the eastern white spruce may be added. This type varying somewhat in composition and development extends to nearly 53° latitude, then to change into a type of simpler composition in which the lodgepole pine plays a prominent part, covering the dry slopes and plateaus northward as far as they are wooded. *Larix lyalli*, *Pinus albicaulis*, and *Abies lasiocarpa* are the species of the alpine zone, above 4,000 to 5,000 feet up timber line, which is found at 7,000 to 7,500.

West of the Coast Range, the celebrated coast forest, also an extension of a more southern flora, is found in a belt running for 200 miles north, and rarely broader than 50 miles at most from the shore, except at the southern boundary, where it reaches 150 miles inland, crossing the Canadian Pacific a few miles east of Yale. The large island of Vancouver is for the most part wooded in a similar manner. Here the Douglas fir in magnificent development with the hemlock and giant cedar are the main timber trees, *Abies grandis*, *Picea sitchensis*, and *Chamaecyparis nootkatensis* adding locally to the values. The fine timber, with diameters sometimes up to 12 feet and 300 feet in height, is, to be sure, not to be found in a continuous body, but according to topography varies with timber of poorer development. Generally speaking the bottoms, benches, and gentler slopes exhibit the heavy timber up to altitudes varying between 1,500 and 2,500 feet. Above this elevation there is found in some parts for another 1,000 feet or so another type, still of commercial value, mainly of *Abies amabilis*. Above the 3,500-foot level only the scrubby or stunted growth of the Alpine type is found.

Along the coast and on the islands north to Portland Canal the northern coast forest changes in composition to the simpler hemlock-spruce type, which continues all the way along the Alaskan shore to Cooks Inlet. It is mainly composed of hemlock, Sitka spruce, and yellow cedar, occasionally where the soil depth is favorable developing to good size, although mostly branchy and really much of it of inferior quality.

The Coast Range being a series of low, broken hills rather than a continuous range, this type continues into the valleys of the rivers for a considerable distance from the coast.

Timber areas and standing timber.—Actual knowledge regarding commercial timber areas is scanty and the scattered knowledge has not been systematically collected. We have to rely on very much generalized estimates.

[a] North American Fauna No. 27. A Biological Investigation of the Athabaska Mackenzie Region.

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Of the vast territory of British Columbia, estimated at 370,000 square miles, not more han 30,000,000 acres, or 12 per cent, is by well-informed land lookers considered merchantable, according to present standards, and it is doubtful whether under any change of standards the acreage of actual and potential commercial forest could be increased beyond 50,000,000 acres. At present, to be sure, the lowest standard at the coast mills is, as a rule, 14 inches in 32-foot logs, and, as a rule, no trees under 26 inches d. b. h. are cut. Of such timber, now pretty nearly all located by timber licenses, not more than 6,000,000 acres are supposed to exist, which may be swelled to 15,000,000 of commercial character when standards are lowered, and both the northern extension and timber of higher altitudes are added, which at 15,000 feet average may indicate a stand of over 225,000,000,000 feet.

In the mountain mills the average log sawed at the mill is 12 inches. Of this description some 15,000,000 acres may be found in the southern Rocky Mountain type, which, figured at 5,000 feet, gives another 75,000,000,000 feet, or altogether for the western Canadian forest 300,000,000,000 feet. One might easily double these estimates without finding the supply inexhaustible. Every effort is being made to get rid of this valuable limited asset of the Province. The government has disposed of at least two-thirds of the coast timber and of one-half of the mountain timber, and only 6,000,000 acres, believed to be good timber, are not disposed of.

The mill capacity so far established is, to be sure, still small, hardly 1,000,000 feet, the value of the log products of the province being by the census of 1905 placed at $11,000,000.

Fires, as everywhere, have made great havoc, especially in the mountain timber. While on the western humid slopes in the heavy timber fires do not do much damage, the drier mountain country has suffered severely, not only along the line of travel, but wherever prospecting could be facilitated by the destruction of the forest cover. The northeastern section, but little explored, is probably without timber of other than local interest.

Of the northern forest, so far as known, not much of commercial value, especially for sawmill use, except for local consumption, may be expected. Those who figure on pulp-wood values will have to keep in mind that for such use too qualitative development as well as quantity per acre in accessible situations are required, and that these conditions are mostly not met here. Not only the distance from centers of consumption is inimical, but the fact that river transportation is for the most part impracticable—the rivers running mostly in the wrong direction and their use being otherwise beset with difficulties.

The southern Laurentian forest is destined to be the permanent forest reserve of the eastern civilization, for most of it is not fit for other use. Agricultural lands do not abound, but pasturage could probably be established over wider areas and the writer expects eventually a large cattle industry to be developed on the better soils now occupied nearly exclusively by hard woods.

As intimated before, soil conditions vary considerably and hence local forest types vary from the almost pure hardwood growth in which birch, maple, elm, and basswood are prominent with black ash, little red oak, and beech of more local distribution, to pure coniferous forest of pines, or black spruce in the swamps. The good saw timber is so irregular in its distribution that one can travel hundreds of miles without seeing any of it. Banksian pine occupies long stretches. It is the "fire pine," being serotinous and opening its cones preferably under the influence of the heat of forest fires. While this pine is useful enough for mine props, railroad ties, and fuel, it rarely reaches saw-timber size. Outside of spruce and balsam fir, the white pine, red pine, and hemlock are the commercial trees, and the northern limit of the white pine circumscribes this area of 150,000 square miles, or, say, 100,000,000 acres. Little, if anything, is known of the total stand of timber remaining, but if, for the sake of getting at some reasonable figure, we assume an average stand of 2,000 feet per acre, we would probably estimate too high. In other words, a stand of 200,000,000,000 feet of saw timber must be considered an ample allowance.

The St. Lawrence Valley sections are, as stated before, practically cut out and may only be considered as helping to eke out the overestimate for the previous section.

Taking Ontario alone, with a total land area of 126,000,000 acres, of which 80,000,000 are still unsurveyed, we find that the distribution of these lands among three types of forest country occupied by the Province gives 30,000,000 acres to the southern hard-wood type, 50,000,000 acres to the central southern Laurentian type, and 46,000,000 acres to the northern forest. Not quite 25,000,000 acres are disposed of to private owners. From the assessment lists we learn that of these 14,000,000 acres are cleared, of which 12,400,000 are in the peninsula, Lake Ontario, and in St. Lawrence Valley, and 1,700,000 in the southern Laurentian plateau. The wood lots on these farms are assessed at 5,500,000 acres, nearly 2,000,000 acres are reported as

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slash, and 2,800,000 as swamp and waste (2,400,000, 2,000,000, and 1,000,000 of the latter, respectively, in the three sections).

Applying a general-experience figure for waste land incapable of recuperation, we would come to the conclusion that 85,000,000 acres, or two-thirds of the Province, will always remain in woods except so far as it may be turned into grazing lands.

Mr. Whitson of the Crown Lands Department, one of the best-informed men on these matters, places the figure as at best 70,000,000 acres productive forest area, and the stand of pine outside of licensed lands (12,500,000 acres are licensed and were some time ago estimated to contain 24,000,000,000 feet, the annual cut being around 800,000,000 feet) and of forest reserves (10,000,000 acres) at 10,000,000,000 feet b. m., and the pulp wood at 288,000,000 cords. He also states that of the jack pine not 10 per cent is fit even for railroad ties.

For Quebec the distribution of land areas may be made as follows: Of the 218,000,000 acres (342,000 square miles) around 144,000,000 acres belong to the northern forest, 50,000,000, the same amount as for Ontario, to the southern Laurentian; the St. Lawrence Valley, with 5,000,000 acres, represents mostly farm area, and the balance of 19,000,000 acres may be accredited to the Acadian region. There are about 9,000,000 acres in farms, of which 7,500,000 are in crops, and 1,500,000 is waste land, hence the total forest and waste land area is over 210,000,000 acres. An estimate by Langelier, superintendent of forest rangers, places the standing lumber of the white and red pine at less than 40,000,000,000 feet, and spruce saw logs at over 100,000,000,000, all other saw material (including jack pine) at about 18,000,000,000 feet, or altogether less than 160,000,000,000 feet.

The maritime provinces, with somewhat over 57,000 square miles, together with the eastern townships of Quebec, south of the river (30,000 square miles), belong to the Appalachian or Acadian forest type. This area is practically cut out as far as pine is concerned, and relies now mainly on spruce for saw timber.

In New Brunswick 12,000,000 acres are estimated to be under wood, the composition of which, by good authorities, is figured as 60 per cent spruce, 10 per cent pine, 5 per cent hemlock, 5 per cent cedar, 20 per cent hard woods. Here the larger portion is owned privately, some 10,500,000 acres. Of the 7,250,000 acres of crown lands, all but about 1,000,000 acres is under license, the latter area being barrens or burnt.

The small remaining area of timber land on Prince Edward Island is, in calculations like these, entirely negligible. New Brunswick, together with Nova Scotia, which represents an area of some 14,000,000 acres, may round off the total stand of saw timber in the eastern provinces to 300,000,000,000 feet and for the whole of Canada to 600,000,000,000 feet. We might readily double these estimates and still remain within reasonable limits of the truth, if a closer utilization, especially on the Pacific coast, and more careful lumbering generally were practiced, and if the fires running with tolerable regularity through the slash did not destroy much of the growing timber besides the young growth.

Considering that the above estimated stand of saw timber, which others have considerably reduced, would not suffice to supply the present annual consumption of coniferous material in the United States for more than fifteen or twenty years, and the import into Great Britain of this class of material for more than sixty to eighty years, the need of securing better knowledge of the conditions of this resource and of employing conservative methods in its use are apparent.

REVIEW OF THE FORESTS OF NOVA SCOTIA, NEW BRUNSWICK, QUEBEC, ONTARIO, MANITOBA, THE NORTHWEST TERRITORIES, AND BRITISH COLUMBIA, BY PROF. JAMES M. MACOUN, OF THE GEOLOGICAL SURVEY OF CANADA, INCLUDING KINDS OF TIMBER, WHERE FOUND, AND THEIR USES. ALSO REGULATIONS FOR CUTTING, AND TABLE OF VALUE OF EXPORTS FROM CANADA OF LUMBER AND OTHER WOOD PRODUCTS, 1894 TO 1903.

THE FORESTS OF CANADA.

Since the date of its first settlement, the products of the forest have been among Canada's chief exports, and at no time has the value of these products been greater than to-day. Their character has changed, indeed, from year to year, but always to the advantage of the country at large. While in the early years of the lumber business hewn timber and split staves were the chief articles exported, followed by logs, deals, boards, etc., industries in which large quantities of wood are required have increased from year to year, especially during the last decade, and a great variety of articles

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which were formerly imported are now manufactured at home. Manufactories primarily established to fill the home demand, have increased their output and become competitors in foreign markets, while many new factories have been built of which the entire product goes abroad. During the season of 1899 the whole output of many of the large factories was required for home consumption. These, and those manufacturing for export, were run at their fullest capacity during the whole season, nearly all of them running at night as well as in the day time. This increase in production has been far slower than the natural resources of the country warranted, but capital has not always been available, and competition in foreign markets was so keen that Canadian manufacturers were slow in entering a field in which success seemed doubtful. The result has been that while excessive production went on in the United States and other countries, and their forests were depleted, those of Canada have not been drawn upon to relatively so great an extent, and "as regards raw material the future is with us." No other country affords so good a field for the profitable investment of capital in the manufacture of wood products; abundant raw material, cheap power, and an unfailing market insure success.

In the Province of Ontario the export of pine, spruce, and other soft woods in the log, when derived from lands leased from the Province, is prohibited; and in the Province of Quebec $1.50 per cord on stumpage dues is allowed on wood from which pulp is manufactured in the Province, and similar legislation is proposed in other provinces. The immediate result of this legislation will of course be a decrease in the quantity of raw material exported, but it is equally certain that there will be increased production by existing factories, and that many new ones will be established.

Elsewhere in this pamphlet a table is given which shows the value of the chief products of the forest exported during the past ten years. These do not include farming implements, pianos and organs, and other articles, in the manufacture of which large quantities of wood are required. The figures explain themselves, except for the years 1897 and 1898. In 1897 the export of lumber was abnormally large, and the decrease in 1898 was due chiefly to the fact that in anticipation of the import tax proposed by the United States an immense quantity of lumber was sent into that country in 1897, which under normal conditions would have remained in Canada until the following year. As the figures given for each year include six months of that year and six months of the preceding year, the effect of this disorganization of the lumber business is also seen in the figures for 1899. These do not show the increase in the second half of 1899, which in the six months ending December 31 amounted to $21,246,871, as compared with $19,191,907 during the same period in 1898.

Wise laws have been made by the provincial and federal governments, having for their object the preservation of our forests, and the owners and lessees of timber limits now exercise greater care than formerly in the prevention of fires, supplementing to a very considerable extent the efforts of the government to lessen the destruction of valuable timber from this cause. The various governments are taking steps toward the reforesting of the denuded areas under their control, and though the actual work so far done in this direction is not great, preliminary investigations are being made which will enable them to apply the methods best suited to each district.

A detailed account of the lumber business in Canada does not come within the scope of this pamphlet. It is intended simply, as its title indicates, to draw attention to the vast timber resources of the country, and it has seemed that this could be best done by giving a brief account of the distribution and more important uses of the chief forest trees, followed by such information regarding the conditions prevailing in the several Provinces as seemed of greatest interest or value. All available sources of information have been drawn upon, and to these the reader is referred for further details. The most important for statistical purposes are the reports issued by the department of trade and commerce and by the dominion statistician, while the crown-lands reports of the different Provinces supply very full information relating to their timber lands, the regulations governing their use, etc. The limits given for the principal trees refer to their commercial distribution only. For further details as to their geographical distribution the reader is referred to the annual reports of the geological survey of Canada and of the department of dominion lands, to special papers on this subject by Dr. G. M. Dawson, Dr. Robert Bell, and Prof. John Macoun, and to the Catalogue of Canadian Plants, by Professor Macoun, all of which have been consulted for the information contained in this pamphlet.

No reference has been made to the prices, as these are subject to constant variation, and those interested may find them in trade journals. The Canadian Lumberman, published at Toronto, Ontario, gives in its weekly edition the current local prices at the principal lumber centers.

Under each species, the nature of the specimens in the Canadian forestry exhibits has been briefly given. The space allotted to Canada for this purpose was not large and it was thought advisable to devote the greater part to the raw products. While many manufactured articles are shown, the number and variety have been curtailed

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to as great an extent as possible to afford space for raw material. In other departments, however, Canada's woods are exhibited in a manufactured form, and those interested in the finished product will find it in the groups devoted to ornamental joinery, framing implements, vehicles, and household furniture.

The character of the information published in the reports issued by the crown-lands departments of the several Provinces varies greatly, which accounts for the want of uniformity in the statistics given where the timber resources of each Province are dealt with. The figures showing the value of each article exported from the different Provinces are from the reports of the department of trade and commerce, but the publication of these details was discontinued in 1897, so that while the total exports of the Dominion are given elsewhere for 1899 and 1900, for the present purpose the year 1897 must be used for all Provinces. The reason for discontinuing the publication of these figures was that as shipments were frequently from Provinces other than those in which the articles were produced they were misleading.

NOVA SCOTIA.

Though Nova Scotia continues to export a large amount of lumber and other products of the forest, the best of the timber lands in that province have already been granted by the crown to individuals or corporations, and from these lands most of the lumber for export will continue to be taken. The greater part of the timber growing on lands still held by the crown is either at present inaccessible or is of too small size to be cut into lumber. Of the 1,500,000 acres of ungranted crown lands about one-half is covered with forest, mostly small spruce and other woods suitable for the manufacture of pulp. Little pine has been left in Nova Scotia, spruce being the chief coniferous wood exported. On much of the land from which the best of the lumber has already been taken there is a large quantity of pulp wood, and every year adds to this supply, as in both Nova Scotia and New Brunswick the climatic conditions are such that when reforesting is left to nature coniferous trees as a rule replace the hard woods on cleared lands. With care there should in the future be no falling off in the annual output of either lumber or pulp. Indeed, new pulp mills are being built every year and the output will consequently increase rapidly for some years to come.

Until 1899 timber lands were granted outright to purchasers, but the provincial government in that year adopted a policy of leasing such lands instead of selling them. Leases are issued for twenty years, the chief conditions being that the lessee shall pay to the crown in advance a rental of 40 cents per acre and shall not transfer the lease to any person or corporation without the consent of the attorney-general. The lessee is under the lease entitled to cut all timber of not less than 10 inches in diameter, and may erect upon the leased land such buildings as are necessary for the prosecution of his business which, if not removed at the expiration of the lease, become vested in the crown.

The value of the lumber and other wood products exported from Nova Scotia in 1897 was $2,781,365 [356], of which $3,382 was foreign produce. The details are as follows:

	Value.
Bark for tanning	$2,680
Firewood	48,363
Logs of all kinds	44,432
Lumber:	
Spruce deals and other	1,370,828
Deal ends	47,732
Planks and boards	781,084
Laths, palings, pickets, joists, and scantlings	3,064
Staves and headings	6,189
All not otherwise stated	14,189
Shingles	6,865
Sleepers and railway ties	111,892
Shooks, box and other	6,865
Timber, square, all kinds	16,746
Wood for wood pulp	800
Wood, and manufactures of:	
Household furniture	2,407
Doors, sashes, and blinds	9,845
Matches and match splints	23,751
Wood pulp	193,853
Not otherwise stated	96,905
	2,781,356

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NEW BRUNSWICK.

Of the 29 indigenous trees of New Brunswick the spruce, hemlock, cedar, tamarac, fir, birch, and maple are economically the most important. In the vicinity of the coast coniferous trees predominate, while the uplands of the interior are clothed with beech, maple, ash, and birch, and in the river valleys elm is abundant. A very considerable part of the timber lands of New Brunswick is in the hands of private individuals, and of the 12,000 square miles still in possession of the Crown, over 9,000 square miles are under license to lumbermen. About 2,700 square miles are still vacant and unlicensed. Great quantities of pine were formerly exported from this province, but very little of merchantable size remains. In New Brunswick, as in Nova Scotia, the demand for pulp wood has made valuable large areas from which the best timber has already been taken and others on which the average size of the trees was too small to make it profitable to cut them into lumber.

The right to cut timber on ungranted crown lands, or on lands for which the licenses already granted have expired, is in New Brunswick acquired by public auction, subject to stumpage regulations and restrictions, so framed as to admirably safeguard the interests of the Crown and prevent waste of any kind. The stumpage dues for the more important products of the forest are:

Spruce, pine, tamarac, fir or hardwood saw logs, per 1,000 superficial feet	$1.25
Hardwood timber up to an average of 14 inches square, per ton	1.10
Hardwood timber above 14 inches, additional, per inch per ton	.10
Pine timber, additional per inch, per ton	.25
Tamarac timber, per ton	.65
Spruce timber, per ton	.65
Cedar logs, per 1,000 superficial feet	1.25
Hemlock, per 1,000 superficial feet	.40
White-birch logs, for spool-wood, per 1,000 superficial feet	.80

The stumpage dues on railway ties and on boompoles are 2½ cents each; on brackets and spurs 1 cent each.

No statistics of the amount of timber cut on land owned by private individuals are available, but it is almost as great as that cut on crown lands, of which details are published by the crown lands department of the province. These show the relative quantities of the different kinds of wood cut, and the proportion of each taken from private lands doubtless very much the same.

Omitting the less important products, the following are the figures for the year ending October 31, 1898:

	Square feet.
Spruce and pine saw logs	80,856,347
Hemlock logs	3,726,756
Cedar logs	7,669,293
Hardwood logs	1,828,734
Spool wood, white birch	2,784,000
Fir logs	648,126

In 1897 New Brunswick exported timber and products of the forest valued at $6,599,697, practically all of which was produced in the province.

	Value.
Bark for tanning	$48,409
Firewood	33,042
Logs, all kinds	860
Lumber:	
Pine deals	23,231
Deals, spruce, and other	4,016,700
Deal ends	124,461
Planks and boards	817,190
Laths, palings, pickets, joists, and scantlings	502,613
Staves and headings	3,430
Not elsewhere specified	68,926
Shingles	604,663
Sleepers and railway ties	17,664
Timber, square:	
White pine	2,569
All other	79,846
Wood, manufactures of:	
Household furniture	2,650
Doors, sashes, and blinds	885

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Wood, manufactures of—Continued.	Value.
Matches and match splints	$1,186
Wood pulp	145,405
Not elsewhere specified	95,050
	6,599,697

QUEBEC.

The territory recently acquired by the Province of Quebec to the north, northwest, and northeast of its old boundaries, has added so much to the forest-covered area in that province that it now ranks first in that respect. Of the 344,450 square miles comprised within its boundaries much is yet unsurveyed—some of it unexplored. In 1898 there was about 47,000 square miles under license for the cutting of timber, but vast tracts remain unlicensed. These are chiefly north of the Ottawa and St. Lawrence rivers and are for the most part covered with spruce, fir, poplar, and birch, the characteristic trees of the subarctic forest. No very accurate figures can be given for the quantity of standing timber in the Province of Quebec, but according to a very moderate estimate recently made by the crown land department, the standing timber, exclusive of pulp wood and undersized trees, will produce at least sixty thousand million feet of lumber, and in the opinion of the writer this estimate is below the true one. Some idea of the immense timber resources of this province may be gathered from a consideration of a single district—Lake St. John—which has recently been reported upon by the superintendent of forest rangers. The area of the Lake St. John basin is about 30,000 square miles, or 19,200,000 acres, of which only about 500,000 acres have been cleared; the remainder is covered with trees, of which about 75 per cent are spruce. A large proportion of these trees are of sufficient size to manufacture into lumber, but the spruce can be used with greater profit for making pulp. At the extremely low estimate of 5 cords of pulp wood per acre there is growing at present on this area 100,000,000 cords of pulp wood; 500,000 tons of pulp could be made there annually for an indefinite period. If the whole province were included in this estimate and an average nearer the true one used, the result would be beyond belief, yet it is hardly possible to make an exaggerated estimate.

The forests of Anticosti and the Gaspe Peninsula are of the same general character as those described above, but elsewhere on the south side of the St. Lawrence and on the north side from the Saguenay River westward, and so up the Ottawa, there is for many miles back from these rivers a large proportion of hard woods. Except in the case of white birch, which has been extensively cut for spool wood, the hard woods of this province are not used to anything like so great an extent for manufacturing purposes as they are in Ontario, but there is abundant maple, birch, and beech, and industries in which they will be used must soon be established.

The timber lands of Quebec are worked under licenses from the crown, at a yearly rental of $3 per square mile and an annual fire tax, the amount of which is fixed from time to time by the commissioner.

Licentiates are forbidden to cut on crown lands pine trees measuring less than 12 inches in diameter, spruce trees measuring less than 11 inches in diameter, and trees of other descriptions measuring less than 9 inches in diameter at the stump; but they are permitted to cut black spruce for the manufacture of paper pulp at a diameter of 7 inches at the stump, i. e., at 3 feet above the ground. All wood goods cut in virtue of a license are subject to the following charges:

Square and waney timber per cubic foot:	
Oak and walnut	$0.04
Other descriptions	.02
Saw logs, boom, and dimension timber, per 1,000 feet b. m., of:	
Spruce, hemlock, balsam, cypress, cedar, white birch, and poplar	.65
Red pine	.80
White pine and other varieties	1.30
Cord wood (firewood), per cord of 128 cubic feet:	
Hard wood	.20
Soft wood	.10
Pulp wood, per cord of 128 cubic feet, 65 cents, with a reduction of 25 cents per cord on timber, manufactured into paper pulp in the Dominion of Canada.	
Rails not exceeding 12 feet in length, per 100 pieces:	
Cedar rails	.30
Rails of other varieties of timber	.15
Pickets, per 100 pieces:	
Cedar pickets	.15
Pickets of other varieties of timber	.10

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Cedar or pine shingles, per 1,000:	
Short	$0.10
Long	.15
Poles of all kinds of timber for carrying electric wires, per linear foot:	
Poles 10 inches diameter or less at the butt	.00¼
Over 10 inches diameter at the butt	.00½
Railway ties of all kinds of timber, per piece	.02
Hemlock lathwood, per cord of 128 cubic feet	.20
Hemlock bark, per cord of 128 cubic feet	.20
Futtocks, knees, floors of birch and other ship-building material, and all wood goods not enumerated in foregoing list, an ad valorem duty on the invoice, per cord	.10

The cord of 128 cubic feet is considered, for the purposes of this tariff, to be equal to 600 feet b. m.

Perhaps the most careful estimate of the average number of trees suitable for lumber or pulp wood, growing on the heavily wooded areas of Quebec, is made by the surveyors and engineers in the employ of M. Henri Menier, the owner of the island of Anticosti. It has been estimated that there are on that island about 1,800,000 acres of forest land, and from the reports made by M. Menier's employees, the average number of trees over the whole area is about 900 per acre. The forests of Anticosti differ in no essential particular from those of northern Quebec and northern Ontario, and M. Menier's figures, which are the result of an actual count on many measured acres, afford a good basis for estimating the number of trees on other areas.

The following is a summary of the forest products exported from Quebec in 1897, with their value:

	Value.
Bark for tanning	$58,313
Firewood	20,747
Logs of all kinds	151,348
Lumber:	
Deals, pine	3,280,126
Deals, other than pine	1,706,692
Deal ends	465,000
Planks and boards	2,310,480
Laths, palings, pickets, joists, and scantlings	160,957
Staves and headings	38,288
Not elsewhere specified	154,261
Shingles	267,799
Sleepers and railway ties	135,739
Stave bolts	1,524
Shooks, box and other	54,193
Timber, square:	
Oak	539,088
White pine	1,348,655
All other	380,755
Wood for pulp	536,622
Wood, and manufactures of:	
Household furniture	35,331
Doors, sashes, and blinds	59,520
Matches and match splints	91,167
Wood pulp	270,136
Not elsewhere specified	204,349
	12,276,082

ONTARIO.

A much greater variety of trees is found in Ontario than in any other province, and, as a natural consequence, the number of wood-employing industries is much larger than elsewhere in Canada. In the southwestern part of the Province coniferous trees are almost wholly wanting, the forests being made up of hard woods, of which oak, hickory, basswood, maple, elm, ash, and beech are the most valuable. The forests of northern and northwestern Ontario resemble those of Quebec, pine, spruce, birch, and poplar being economically of most importance. Pine has long been the chief wood exported from Ontario, and though it exists in nothing like its former abundance, great quantities remain uncut. Nearly all the lands upon which it grows have already been sold or licensed by the Crown. Not nearly so much hard wood is exported now as formerly, partly because of the diminished supply and partly be-

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cause the available wood is nearly all in the hands of those who own or are interested in manufactories and who prefer to hold it for their own use. Scarce as many of our hard woods are doubtless becoming, the amount yet standing is much larger than is generally supposed, and the greatly increased value of some species makes it now worth the farmer's while to haul timber to mills or railway stations which he formerly would have used for firewood.

The increase in Canadian exports of articles manufactured from wood is in great measure in the Province of Ontario, where long-established concerns have enlarged their plants and new industries have been established. Recent legislation regulating or prohibiting the export of unmanufactured material from the Province of Ontario has given a great impetus to home industries, the result of which is seen in the increased quantity of wood products exported. No trustworthy estimate has been made of the timber still standing in this Province, but the amount is very large, and in Ontario, as in Quebec, one of the largest provincial assets is the growing wood suitable for the manufacture of pulp. Great as has for many years been the annual value of the timber cut in Ontario, it will increase in the future.

In 1898 there were taken from the Ontario crown lands 544,457,139 feet, board measure, of pine saw logs, and 8,224,442 feet of other logs; 26,977,461 feet of boom and dimension timber, and 1,478,387 cubic feet of square timber, besides a large quantity of cord wood, railway ties, pulp wood, etc. No figures are available for the quantities cut on private lands.

The regulations governing the use of crown timber lands in Ontario are, in brief, that when berths or limits are explored, surveyed, and valued they shall be offered for sale by public auction, at the upset price of such valuation, and sold to the highest bidder for cash at the time of sale. All timber berths and limits are subject to an annual ground rent of $3 per square mile, in addition to which the following crown dues must he paid:

Black walnut and oak, per cubic foot	$0.03
Elm, ash, tamarack, and maple	.02
Birch, basswood, cedar, buttonwood, and cotton wood, and all boom timber, per cubic foot	.01½
Red and white pine timber, per cubic foot	.02
All other woods	.01
Basswood, buttonwood, and cotton wood saw logs, per standard of 200 feet b. m.	.15
Red and white pine saw logs and boom timber, per standard of 200 feet b. m.	.20
Walnut, oak, and maple saw logs, per standard of 200 feet b. m.	.25
Hemlock, spruce, and other woods, per standard of 200 feet b. m.	.10

The dues on other forest products will be found in the crown timber regulations of the Province.

Ontario exported in 1897 wood products of the value of $10,602,364, of which $12,124 was foreign produce. The following are the details:

	Value.
Bark for tanning	$2,752
Firewood	71,592
Logs of all kinds	1,927,480
Lumber:	
Planks and boards	6,254,737
Laths, palings and pickets, joists and scantlings	169,910
Staves and headings	651,509
Not elsewhere specified	90,531
Shingles	303,674
Sleepers and railway ties	71,908
Stave bolts	37,110
Shooks, box and others	1,914
Timber, square:	
Oak	1,200
Pine, white	1,205
All other	24,029
Wood, for wood pulp	173,730
Wood and manufactures of:	
Household furniture	79,873
Doors, sashes, and blinds	217,813
Matches and match splints	35,172
Wood pulp	132,505
Not elsewhere specified	353,660
	10,602.364

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MANITOBA AND THE NORTHWEST TERRITORIES.

As is well known, the greater part of the settled portions of Manitoba and the Northwest Territories is made up of prairie lands, but even in western Manitoba, Assiniboia, and southern Alberta trees grow in damp situations and in river valleys, so that the settler is nowhere very widely separated from wood suitable for house logs, firewood, and fencing, and in these districts the timber regulations are especially favorable to settlers. Northern Manitoba, Alberta, and Saskatchewan and practically the whole of Keewatin, Athabasca, and Mackenzie are covered by the subarctic forest, and these districts, although at present but sparsely settled, will eventually become almost, if not quite, as valuable as the prairie region. In much of this vast area the soil and climate are good, and though many years must elapse before the timber growing on it will be required for home consumption, there will very soon be such a demand for wood pulp in Minnesota and Dakota that the wood growing in Manitoba and Keewatin will be drawn upon. Indeed, the consumption of paper made from wood pulp is already so great in the northern United States and in Manitoba that were advantage to be taken of the raw material, which is to be had in such abundance near the chief points of consumption, the manufacture of wood pulp would at once become one of the chief industries of southern Keewatin and eastern and northern Manitoba, and the time is not far distant when the bulk of the wood pulp used in the United States north and northwesterly from Chicago will come from Manitoba and northwest Canada.

Railways and natural waterways afford at the present time adequate transport facilities toward the south, and when the Hudson Bay route to Europe has been opened Keewatin and northern Manitoba will be the chief producers of wood pulp, with which Newfoundland and the eastern provinces will have to compete in European markets. The area of Keewatin alone is 498,000 square miles, much of which is covered with spruce, poplar, and other woods suitable for the manufacture of pulp of the best quality.

Though the wooded area in this district is greater than in the Province of Quebec the average size of the trees is not so large, but it is probable that the actual amount of the wood suitable for the manufacture of pulp is almost if not quite as great in Keewatin as in Quebec.

The timber lands in Manitoba, the Northwest Territories, and within 20 miles on either side of the Canadian Pacific Railway in British Columbia are still held by the Dominion government, and licenses to cut timber can be obtained only by public competition. The licensee must pay an annual ground rent of $5 per square mile, except west of the Eagle Pass in British Columbia, where the yearly ground rent is 5 cents per acre. In addition to the rent the following crown dues must be paid: Sawn lumber, 50 cents per 1,000 feet b. m.; railway ties 8 feet long, 1½ cents each; railway ties 9 feet long, 1¾ cents each.

Shingle bolts, 25 cents per cord, and 5 per cent on the sales of all other products of the berth, but in British Columbia a rebate of 40 cents per 1,000 feet is allowed on all lumber exported.

Permits to cut timber from crown lands are also granted at public competition. For timber so cut the following dues are payable: $2 to $3 per 1,000 feet b. m. for square timber and ½ to 1½ cents per linear foot for building logs; from 12½ to 25 cents per cord for firewood, 3 cents apiece for railway ties, and 20 cents per 1,000 shingles. Homesteaders who may have no timber of their own are entitled to a permit free of dues for 3,000 linear feet of building logs, 400 roof poles, 500 fence posts, and 2,000 fence rails.

In the Yukon Territory a license to cut timber on an area of not more than 5 square miles may be granted to the first applicant upon payment of a bonus of not less than $250 per square mile, and the licensee must also pay a stumpage of $2 per 1,000 square feet b. m. on the timber cut. Permits to cut firewood and railway ties are granted upon easy terms.

During the year ending June 30, 1898, the following quantities of building material were taken from Dominion lands:

	Feet.
Sawn lumber	39,096,407
Shingles	1,584,500
Laths	24,200

Nearly all of that cut in Manitoba and the Northwest Territories was for home consumption, the amount exported being very small.

There is under license from the Dominion the following areas of timber lands:

	Square miles.
Manitoba	659.84
Alberta	1,134.74
Saskatchewan	256.34
British Columbia	304.63

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BRITISH COLUMBIA.

The character of the forests of British Columbia is very different from that of the other provinces. The trees are much larger, and all the more valuable species are peculiar to the Pacific coast. These are the Douglas fir, the giant arbor-vitæ, Menzies or Sitka spruce, yellow cypress, and the western hemlock, all of which attain a great size on Vancouver Island and the mainland in the vicinity of the coast, and, with the exception of the yellow cypress, in the river valleys of the interior. The abundance of standing timber near the sea, and the fact that most of the lumber cut at the mills was to fill large orders for particular sizes, led to very wasteful methods of making lumber, immense quantities of the smaller trees (small for British Columbia) being left in the woods to be destroyed by fire, while at the mills themselves huge slabs of great length were cut from the logs, sawn into easily handled lengths and burnt. Better methods now prevail, but nothing like the economy which characterizes lumbering operations in eastern Canada is yet practiced in British Columbia.

The nature of the country makes it impossible to estimate with accuracy the area of unlicensed timber lands in British Columbia, but it is probable that more than one-third has been taken up. The acreage of timber under lease in 1903 was about 1,175 square miles. In 1901, 241,311,709 feet of lumber of all kinds was cut, and in 1902 281,945,866 feet.

Under certain conditions leases of unpreempted crown timber lands may be granted to the person or corporation who has tendered the highest cash bonus for a period not to exceed twenty-one years, subject to the payment of a royalty of 50 cents per 1,000 feet on the scale measurement of the logs cut on the leased premises and to the payment in advance of 25 cents per acre.

Special licenses are also issued to cut timber on crown lands. Any person desirous of obtaining such special license must first stake out the land sought to be included in his license. He must then publish for a period of thirty days in the British Columbia Gazette and in any newspaper circulating in the district in which the lands lie notice of his intention to apply for such license. Within thirty days after the last publication of such notice the license must be applied for.

A special timber license for logging purposes shall not be granted for a larger area than 640 acres of land, which shall be in one block bounded by straight lines drawn to the cardinal points, none of which lines shall be less than 40 chains in length, except in cases where such a length can not be obtained. Such special license may be granted for any period not exceeding five years, and the fees payable therefor shall be as follows:

	West of the Cascade Range.	East of the Cascade Range and in the electoral district of Atlin.
For each license for—		
One year	$140	$115
Two years	280	230
Three years	420	345
Four years	560	460
Five years	700	575

Payment for the whole period applied for shall be made, or the license shall not issue. Such license may be granted or renewed at the discretion of the chief commissioner, and shall be subject to such tax and royalty as may be by this act or from time to time by an act of the legislature of the Province of British Columbia imposed.

There is also a tax upon all timber cut in the province, but the details of this tax are too complicated to permit of their being summarized here. It varies according to the length and diameter of the log from $2 per 1,000 feet board measure for logs of not more than 40 inches in length and 24 inches in diameter to $5.50 for logs of more than 80 feet in length and over 48 inches in diameter. The tax on mining props and railway ties is 50 cents per cord and on shingle bolts $1 per cord.

The lumber trade of this province with South America, Australia, and Eastern Asia will certainly increase with the demand for coniferous woods in these countries, and though the bulk of it has been so far in a semimanufactured form, the establishment of new factories will in the near future greatly augment the quantity of furniture, sashes, doors, etc., that will be exported, while the manufacture of wood pulp is certain to become one of the chief industries of the province.

Wood products to the value of $666,354 were shipped by sea from British Columbia in 1901. The figures for shipments by rail are not available.

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LIST OF PRINCIPAL COMMERCIAL WOODS OF CANADA, WITH THEIR DISTRIBUTION, ECONOMIC VALUE, AND RELATIVE ABUNDANCE.

The arrangement of the species in the following list, though not scientifically correct, is that which is most familiar to those who will see this pamphlet, and has been adopted for that reason. The space devoted to each species bears small relation to the importance of the wood economically, the most valuable species being those which are the best known, and of those little more than their distribution is given.

BASSWOOD (*Tilia americana*, Linn.).—The Basswood grows sparingly in New Brunswick, more abundantly in Quebec, and attains its greatest size and is most abundant in the Province of Ontario. It is also found in eastern Manitoba. For commercial purposes, the greatest quantity is cut in that part of Ontario which lies between Lakes Ontario and Erie on the south and the main line of the Canadian Pacific Railway on the north, where it is often more than 3 feet in diameter and 100 feet in height. Basswood is used for a great variety of purposes, but the consumption of raw material is comparatively small when the vast number of articles into which it is manufactured is considered, as many of these are made from very thin veneers. The wood is white in color, very light and soft and easily worked, but, though tough, it is not strong. It warps very little, not at all if well seasoned, and is on that account much used for sounding boards in pianos and for organ stock. It enters largely into the manufacture of cheap furniture, the light parts of farming implements, carriage panels and bodies, boxes and coffins, where a light, easily worked wood is needed. Cut as veneer, it is used for fruit baskets and boxes, cloth boards, bandboxes, cheese boxes, and for a variety of similar purposes, and as "three-ply" for boxes and chair seats. It is the principal wood used in the manufacture of "wooden ware," and, turning easily, it is made into bowls, toys, etc. For building purposes it is not much used, except as clapboards and for light interior work. When drawn directly from the stump to the saw, the wood is very white, and if well seasoned after being cut, it takes a very high polish.

Exhibits: Sections of logs, deals, box shooks, fruit boxes and baskets, cloth boards, veneers, polished panels.

BROAD-LEAVED MAPLE (*Acer macrophyllum*, Pursh.).—The broad-leaved maple is common on Vancouver Island and along the coast in the southern part of British Columbia. It is the most valuable of the deciduous trees of the west coast. Though not as hard or as strong as the hard maple of the east, the wood is much better than that of the eastern soft maple. Much of it is "curly," which adds greatly to its value as cabinetmaking material. It is used in the manufacture of furniture, mantels and handles, and for interior finishing.

Exhibits: Section of tree, boards, and polished panels.

HARD MAPLE—SUGAR MAPLE (*Acer saccharinum*, Wang.).—The hard maple is a common tree from Nova Scotia westward to Lake Superior, always on good soil. It reaches its greatest size in southwestern Ontario. Throughout its range it has always been esteemed the best material for firewood, and vast quantities of valuable timber are every year consumed in this way. In recent years small mills have been built in the settled portions of Canada in which it grows, and much of what was formerly used as firewood is now being cut into lumber for home consumption and for export. Where it is most abundant large factories have been established, an annually increasing quantity of this and other hard woods being made into furniture and other manufactured articles. The wood is very hard, closegrained, tough and strong, and as it exhibits a great variety of color and fiber arrangement, it is one of our best woods for veneering, paneling, and high-class furniture.

The "bird's eye" and "curly" forms are found in infinite variety, and are greatly valued by the cabinetmaker. Hard maple is used in Canada in the making of furniture and in cabinetwork of all kinds, as flooring and for interior finishing, and in the manufacture of domestic utensils, handles, butchers' skewers, dumb-bells and Indian clubs, shoelasts and pegs, saddletrees, mangle rollers, and in many industries in which a hard, tough wood is desirable. It is also used for the keels of boats and ships, and is made into charcoal for smelting purposes. By the lumbermen it is used for handspikes and other implements used in river driving, and by the millwright for boxes and bearings and for the teeth of gearing wheels. It is exported in the log, as square timber, deals, and boards, and in the form of blocks and squares, as chair parts, and in other semimanufactured forms. It is from this tree that maple sugar is generally made.

Exhibits: Sections of log, square timber, boards and polished paneling, blocks and squares, chair parts, kitchen utensils, butchers' skewers, and other specialties.

SOFT MAPLE—RED MAPLE (*Acer rubrum*, Linn.).—The red maple is common from the Atlantic to Lake Superior, ranging a little farther north than the hard maple. The silver maple, *Acer dasycarpum*, Ehrh., is not in this paper separated from *Acer rubrum*, as these woods are commercially classed together as soft maple. The wood of the soft maple is soft and brittle, not comparable with that of hard maple, nor is it used for any-

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thing like so great a variety of purposes. Being soft and turning easily, many articles of domestic use, such as butter-making utensils, kitchen ware, etc., are made of this wood. It is also used for cabinet work and flooring.

Exhibits: Section of tree, deals, boards, and polished panels, butter-making and kitchen utensils.

BLACK CHERRY (*Prunus scrotina*, Ehrh.).—Not very abundant nor of large size in the maritime provinces nor Quebec, but many fine trees are still standing in Ontario, in the southern part of which province it attains its greatest size in Canada. The quantity cut there is, however, not sufficient for home consumption, and a good deal is imported for use in furniture factories and for interior finishing, for which purposes it is largely employed.

Exhibits: Section of tree, square and dimension timber, and polished panels.

WHITE ASH (*Fraxinus americana*, Linn.).—The white ash ranges from Nova Scotia to western Ontario, increasing in abundance and size until its western limit is reached. This is the finest and most useful of the ashes, being frequently found 100 feet in height and over 3 feet in diameter. Its wood is both strong and elastic, bending easily, which fits it for a great variety of uses. It enters largely into the manufacture of agricultural implements of all kinds, as well as wagons, carriages, and sleighs. Though not as good as some other woods for that purpose, very fine handles of all kinds, whiffletrees, neck yokes, etc., are made from white ash, second-growth wood being generally used. It is the principal wood used for oars. Like all other hard woods, it is employed for flooring, furniture, and cabinet work. It is one of the most valuable Canadian woods, but it is no longer abundant.

Exhibit: Sections of trees, square timber, deals, boards, and polished panels, chair parts, handles, and specialties.

BLACK ASH (*Fraxinus sambucifolia*, Lam.).—The black ash is more widely distributed than the white ash and is more abundant than the latter throughout its range. It is found from Anticosti west to eastern Manitoba in swamps and river bottoms. The wood is not so hard as that of the white ash, but it is tough and elastic and is on that account well suited for cooperage work and basket making. It is darker in color than the white ash and though used for the same purposes is not so highly valued.

The red ash and the green ash are not separated commercially from the two preceding species; the wood of the latter resembles that of the white ash, while that of the former is more like the black ash. Both range farther west than the other species, growing along the Assiniboine River and tributaries of lakes Manitoba and Winnipegosis.

Exhibits: Section of tree, boards, polished panels, and cooperage stock.

RED ELM—SLIPPERY ELM (*Ulmus fulva*, Michx.).—The American or white elm is of wide distribution in Canada, being found from the maritime provinces westward to rivers falling into Lake Winnipegosis, in Manitoba. It increases in size and abundance until western Ontario is reached, where it is often found 6 feet in diameter and over 100 feet in height. It also grows to a large size in the valleys of the Winnipeg and the Red rivers. The wood of the white elm is very tough and difficult to split, and on this account it is much used for wagon hubs, blocks for all kinds of tackle, and for gunwales, as the driving of bolts is less likely to split it than any of our other woods. It is heavy and strong, but not durable. It is much employed in barrel, chair, and wheel making, and for a great variety of purposes when veneer cut. As lumber it is rather coarse, but is very largely used in the manufacture of furniture, coffins, and flooring. Varying greatly in color and grain, it is employed to imitate other woods, nearly all the cigar boxes used in Canada being made of elm, while practically all coffins are made of either elm or basswood stained and polished to imitate other woods.

Exhibits: Sections of logs, square timber, deals, boards, and polished panels, cooperage and chair stock, hubs, butter dishes, laths, strips, and cigar boxes.

WHITE ELM (*Ulmus Americana*, Linn.).—The red elm is not of much importance commercially in Canada, and is not found anywhere in great quantity. It is more durable than the other elms and is better suited than them for use as railway ties, fence posts, and rails. It is employed for much the same purposes as the other elms. The inner bark possesses valuable medicinal qualities and is frequently prescribed in bad dysentery and diarrhea cases; it is also used in the form of poultices.

Exhibits: Section of tree.

ROCK ELM—CORK ELM (*Ulmus racemosa*, Thomas).—The rock elm grows in southern Quebec and west to Lake Superior, being best developed in southern Ontario, to which part of Canada it is, as a commercial wood, now confined. It is much superior to the other elms, and for many purposes is unequaled by any other wood. It is tough, strong, elastic, and very heavy. Its chief use is in the manufacture of agricultural implements, bicycle rims, and wheel stock, and it is well suited for any purpose for which a wood that does not split easily is requisite. It is largely used in bridge and shipbuilding and for heavy furniture. When highly polished the wood is

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very beautiful, and repays a greater expenditure of time in polishing than is usually given to elm.

Exhibits: Section of tree, square timber, deals, and wagon hubs.

SYCAMORE—BUTTONWOOD (*Platanus occidentalis*, Linn.).—Confined in Canada to southwestern Ontario, where trees 3 and 4 feet in diameter and 80 feet in height are still numerous. The wood is heavy and hard, but not very strong. It is not a good wood for outdoor work, but is extensively used in the manufacture of various specialties, such as bowls, butter trays, etc., as well as cigar boxes and barrel headings. Like other woods of inferior quality, it is also employed for a variety of purposes for which the better material is not available.

Exhibits: Sections of trees, deals, and polished panels.

HICKORY (*Carya alba*, Nutt.).—The hickory is, for commercial purposes, confined to Ontario, and it is only in the southwestern part of that Province that it is found in any considerable quantity. The wood is very heavy, hard, tough, strong, and elastic, though it is not durable when exposed to the weather or when in contact with the soil. As fuel it excels even hard maple. "Second-growth" hickory possesses in even greater degree than the ordinary wood the qualities that make it so valuable for fishing rods, handles of all kinds, axles for light but strong vehicles, and for farming implements. The nuts of the hickory are the best grown in Canada. *Carya tomentosa*, Nutt., the white-heart hickory is included with the above species commercially and possesses the same qualities. The bitter-nut *Carya amara*, Nutt., is not quite so valuable as hickory, but is used for the same purposes.

Exhibits: Section of tree, square timber, deals, ax and other handles.

RED BIRCH—CHERRY BIRCH (*Betula lenta*, Linn.).—The red birch is an abundant tree from Nova Scotia westward to Lake Superior, the finest trees growing in the Province of Quebec north of the Ottawa and St. Lawrence rivers, and in central Ontario, in the counties of Huron, Grey, and Bruce, and in the districts of Nipissing, Algoma, and Parry Sound, where it is often more than 4 feet in diameter. It is the best of birches for cabinetwork and furniture, and is exported in great quantity for that purpose in the log as square timber, deals, blocks, and squares, and as chair and other furniture stock. The wood is very hard, heavy, and strong. The yellow birch, *Betula lutea*, Michx, is seldom separated, commercially, from the red birch, and is employed for the same purposes. The wood of the red birch is, however, rose colored, often as dark as that of the cherry, in imitation of which it is frequently used. Good hubs are made from birch, and in the maritime provinces, where other suitable woods are not abundant, it is employed in the construction of wagon and cart frames. Turned boxes and similar articles are also made of this wood, as well as button molds. Red birch is very durable under water, and is used for piles and sluice work, and being little liable to the attacks of insects is valuable wood for shipbuilding purposes.

Exhibits: Sections of trees, square timber, boards, deals, polished panels, chair parts, and turned work.

WHITE BIRCH—CANOE BIRCH (*Betula papyrifera*, Marsh.).—The white birch ranges from the Atlantic to the Pacific, and in the north almost to the Barren Grounds. The finest trees are found in the valley of the St. Lawrence River and its western tributaries. The white birch is not so large as either the red or yellow birch nor is the wood so heavy. It is white, very hard and close grained, and is the principal wood used for spools, bobbins, turned boxes, bowls and other wooden ware, shoe lasts and pegs. It is also employed in the manufacture of furniture and for interior finishing. In the more settled parts of Canada where good transport facilities are available the best white birch has already been utilized, but vast areas remote from railways yet remain to be exploited.

Exhibits: Sections of trees, deals, boards, and polished panels, spools, bobbins, turned boxes and specialties.

WHITE OAK (*Quercus alba*, Linn.).—Though the true white oak is *Quercus alba*, several other species are so classified commercially. The most important among these is the bur oak, *Quercus macrocarpa*, Mich. The true white oak is found in western Quebec and in Ontario as far west as Lake Huron. The bur oak has the same range as *Quercus alba*, but is also found in the Maritime Provinces and in the west throughout the wooded portions of Manitoba. The wood of both species is very heavy, hard, tough, and durable, that of the bur oak being the most durable of any American oak when in contact with the soil, which makes it very valuable for use as fence posts, railway ties and piles. The wood of the white oak is also largely employed in shipbuilding, carriage and wagon making and cooperage, the manufacture of agricultural implements and for cabinet and furniture work, flooring and interior finishing. Quarter cut, it exhibits a great variety of grain and coloring.

Exhibits: Sections of trees, square timber, railway ties, deals, boards, polished panels, and flooring.

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WESTERN WHITE OAK (*Quercus Garryana*, Douglas).—Though a few trees of this species grow on the mainland of British Columbia, it is practically confined to the southern part of Vancouver Island, the finest trees growing in the vicinity of the city of Victoria, where trees three or four feet in diameter, from which logs from ten to twenty feet long can be obtained, are not uncommon. The wood resembles that of English oak, and is very beautiful when made up into furniture and cabinet work.

Exhibits: Sections of trees.

RED OAK (*Quercus rubra*, Linn).—The red oak extends from the Maritime provinces westward to Lake Superior, reaching the greatest size in the Province of Ontario. The wood is inferior in quality to that of the white oak, but is almost as hard, heavy, and strong. It enters more largely than the white oak into cooperage work, and, as with white oak, second growth wood is much used for handles of all kinds, wheel stock, axles, whiffletrees, etc. For furniture, cabinetmaking, and interior finishing it is almost as valuable as the white oak. The bark is rich in tannin.

Exhibits: Sections of trees, square timber, deals, polished panels, hubs, and spokes.

CHESTNUT (*Castanea dentata*, Marsh.)—The chestnut is confined to the southwestern part of the Province of Ontario and is not even there in sufficient quantity to be of great importance commercially. The wood is neither strong nor flexible, but is durable and easily worked. In Canada it is employed chiefly in cabinetwork, but is also well suited for use as railway ties and in heavy construction work.

Exhibits: Section of tree and deal.

BEECH (*Fagus ferruginea*, Aiton).—The beech grows in the Maritime provinces, Quebec and Ontario, the finest trees being found in the vicinity of Lake Huron. The wood varies greatly in color and grain and is much employed in the manufacture of furniture and for flooring. The white-colored wood is said to be more tough and lasting than that of red color. Quarter-cut it is very beautiful. Its principal use is for tool handles, carpenters' planes, shoe lasts, mallets, and for various turned articles.

Exhibits: Sections of trees, deals, and chair parts.

ASPEN POPLAR (*Populus tremuloides*, Michx.).—The aspen is the most widely distributed of Canadian trees, ranging from the Atlantic to the Pacific and north to the Barren Grounds. In some parts of Canada it is the only wood available for fence rails and firewood, and it furnishes the material for settlers' log houses in many parts of the prairie region. Commercially the aspen is used chiefly in the manufacture of pulp, for which purpose it, like all the poplars, is well suited. At present spruce has, to some extent, driven poplar out of the market as a pulp wood, but the immense quantity growing throughout the Canadian subarctic forest will some day be utilized. The wood of the aspen is light and easily worked, and is used for woodenware, light barrels, such as those used for sugar and flour, and for crates and light boxes. It is also employed in the manufacture of furniture. The large-toothed aspen, *Populus grandidentata*, Michx., is employed for the same purposes as the aspen.

Exhibits: Sections of trees, deals, boards, and pulp wood.

BALM OF GILEAD—BALSAM POPLAR (*Populus balsamifera*, Linn.).—The range of the balsam poplar is much the same as that of aspen. In the northwest territories it attains a great size, being there generally found in river valleys, where it is sometimes 150 feet in height and 7 in diameter. On the islands and banks of the Pease and Athabasca rivers it grows to a greater size than elsewhere in Canada, and large trees are found down the Mackenzie River as far north as the Arctic Circle. The wood is soft and not strong, but with the cottonwood (*Populus monilifera*, Aiton) it is being used in increasing quantities instead of whitewood (*Liriodendron tulipifera*, Linn.). It is employed in the manufacture of pulp and for the same purpose as the other poplars. *Populus trichocarpa*, T. & G., an abundant tree in British Columbia, differs but little from the balsam poplar.

Exhibits: Sections of trees, deals, dimension lumber, and pulp wood.

BLACK WALNUT (*Juglans nigra*, Linn.).—Though once so abundant in southwestern Ontario, the old black walnut trees have almost all been cut down, though a few still remain, and younger trees which have been planted or preserved will soon augment the available supply for economic purposes, as the black walnut is a rapid grower. Plantations of this tree have been made in various parts of Ontario and western Quebec, one of the finest being that owned by Sir Henri Joly de Lotbiniere. Walnut is not at present as poplar as formerly as a cabinet wood and for interior finishing, lighter-colored material being now in vogue, but veneering made from the dark heart wood is still used in considerable quantity, and the falling off of the supply is doubtless the principal reason for the change in fashion. Walnut is too beautiful and valuable a wood to remain long unpopular, and the money and time invested in walnut plantations will be amply repaid in the future.

Exhibits: Section of tree, boards, veneers and polished panels.

BUTTERNUT (*Juglans cinerea*, Linn.).—The Butternut groves in southern New Brunswick and westward to the Georgian Bay. The wood is much lighter in color than

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the walnut and is not so heavy, hard, or strong, but is very durable. It is easily worked and is chiefly used for cabinet work and interior finishing. The grain is somewhat like that of walnut, so that when stained a very good imitation of walnut may be made from butternut. It is a tree of rapid growth.

Exhibits: Section of tree, boards, and polished panels.

ARBOR VITÆ—WHITE CEDAR (*Thuya occidentalis*, Linn.).—Very rare in Nova Scotia, but abundant throughout New Brunswick, Quebec, and Ontario. It grows to a considerable height, but seldom exceeds 2 feet in diameter. The wood is soft and not strong and has never been much used as lumber, but is unexcelled for shingles. The white cedar is chiefly used for fence rails and posts, railway ties, and telegraph and telephone poles. No other wood is used in any quantity for telephone poles in Ontario and Quebec. It is very durable in contact with the soil, or when exposed to the weather.

Exhibits: Section of tree, square timber, polished panels.

GIANT ARBOR VITÆ—RED CEDAR (*Thuya gigantea*, Nutt.).—The giant arbor vitæ is next to the Douglas fir in importance in British Columbia, where it attains its greatest size on Vancouver Island, along the coast, and in the lower parts of the rivers of the Coast Range. It is rarely found in the dry interior of British Columbia, but is abundant in the river valleys on the slopes of the Selkirk and Coast ranges. Though seldom found more than 150 feet in height, in circumference it rivals the Douglas fir, trees of 8 to 10 feet in diameter not being rare, and they are occasionally found much larger.

It is chiefly used in the manufacture of shingles, for which purpose it is unequaled by any other wood. Formerly the shingles were made by hand, the wood splitting easily; but improved machinery has so lowered the cost of production that comparatively few hand-made shingles are now used, though they are still in demand when a shingle of superior quality is desired. The wood of this tree takes a very brilliant polish and is well adapted for interior finishing of all kinds. So great is the variety of shading in the color of the wood that a large house may be finished in it without two rooms being alike. It is not only largely exported, but is now being shipped in increasing quantities to eastern Canada. In British Columbia it enters largely into the manufacture of doors and cabinetwork of all kinds. Like all the cedars it lasts well underground, and on this account is much used in the form of telegraph poles and fence posts. The immense canoes made by the west coast Indians are, with very few exceptions, made of this wood.

Exhibits: Sections of logs, deals, boards, shingles, polished flooring, and wainscoting.

YELLOW CEDAR—YELLOW CYPRESS (*Thuya excelsa*, Bong).—The yellow cypress is not nearly so abundant in British Columbia as the arbor vitæ, nor is its circumference so great. Its height is about the same as the arbor vitæ—150 feet—and its average diameter about 4 feet, though occasional trees attain 5 feet. The yellow cypress is confined to the coast and the adjacent islands. In the southern parts of British Columbia it is not found at sea level, the finest trees growing at altitudes of from 1,000 feet to 2,500 feet. Though valuable for many purposes, the wood of the yellow cypress is not extensively used at present, the cost of transportation to the seaboard being too great. On the Queen Charlotte Islands it descends to the coast. When lower levels have been cleared of other trees the yellow cypress will be utilized. Its wood is very close, and, as the wood takes a very high polish, it is greatly valued for interior finishing and for the manufacture of furniture. It commands a higher price than either Douglas fir or arbor vitæ. The natives along the northern coast of British Columbia make many articles for domestic use from this wood.

Exhibits: Section of tree, boards, and polished paneling.

WHITE PINE (*Pinus Strobus*, Linn).—The white pine is by far the most valuable of Canadian trees, and, notwithstanding the reckless waste that characterized lumbering operations until very recently, there still remains in Canada an immense quantity of growing timber from which vast quantities of lumber will be made.

The white pine ranges from the maritime Provinces westward through Ontario and Quebec to the extreme eastern edge of Manitoba. On the north but a few trees are found beyond the height of land separating the Hudson Bay and St. Lawrence watersheds. Large trees are not common in the eastern Provinces, from 2 to 2½ feet diameter being there considered a good-sized tree. In the Ottawa Valley, however, and on streams running into Lake Huron, trees 3 and 4 feet in diameter are common, while larger trees are not rare. White pine is exported principally in the form of square timber, deals, and boards. Its chief uses are in construction work of all kinds, and, as the slabs and edgings are made into shingles and laths, there is now little waste of material. The wood is light, soft, and not strong, but it is suited for a great variety of purposes, as it is easily worked and free from resin.

Exhibit: Sections of trees, square timber, deals, polished panels, box shooks, and interior finishing.

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WESTERN WHITE PINE (*Pinus monticola*, Dougl.).—None of the western pines are found in quantity near the coast and so far they have been utilized for local purposes only. The best of these is *Pinus monticola*, Douglas, which is little inferior to the white pine of the East. It is found in the interior of Vancouver Island and is abundant in the southern parts of the Coast Range where there is heavy rainfall. In the Selkirk Mountains it is not very common, but attains a considerable size on the mountain slopes. The wood is used for the same purposes as the eastern white pine.

RED PINE (*Pinus resinosa*, Aiton).—The red pine is not so widely distributed as the white pine, nor is it so abundant in the areas on which it grows. It is neither so tall nor so large a tree as the white pine. Commercially it is frequently not separated from it, though the wood of the two trees differs materially, the red pine being harder and stronger than the white pine, much more elastic, and containing a great deal of resin. The red pine has very wide sapwood, which adds to its value as material for heavy construction work, piles, etc. It is used for the same purposes as white pine, to which it was formerly preferred, and has again in recent years reached a value more nearly approaching that of white pine.

Exhibits: Sections of trees, square timber, deals, polished panels, box shooks, and interior finishing.

SCRUB PINE—JACK PINE (*Pinus banksiana*, Lam.).—Jack pine is found from the maritime provinces northwesterly to the foothills of the Rocky Mountains, where it is replaced by *P. murrayana*. It increases in height and girth as one travels westward, the finest trees being found between northern Manitoba and the Athabasca River, in which district great areas are covered with large trees. In Nova Scotia and New Brunswick it is small and of no value. Elsewhere in Canada it is not much used at present except for railway ties and locally where other pine is not to be had. As a timber for use in mines and for heavy construction work generally, its good qualities are not yet appreciated. Recent experiments have proved that good pulp can be made from it.

Exhibits: Sections of trees, deals, pulp wood, and railway ties.

BLACK PINE—(*Pinus murrayana*, Balfour).—The black pine replaces the preceding species on the eastern slopes of the Rocky Mountains. It is abundant in the northern part of the interior plateau of British Columbia, where it covers great areas. In the southern part of the province it is most abundant at altitudes ranging between 3,000 feet and 4,000 feet. Though estimated of little value where other conifers grow, except for railway ties and firewood, it is much used for mine props and other construction work in the mining districts of British Columbia. It is admirably suited for this purpose, as the wood is very tough, and when not exposed to the weather does not easily decay. It is said to make excellent charcoal.

Exhibits: Sections of trees and deals.

NOTE.—The other Canadian pines are of small economic value and are only used locally.

BLACK SPRUCE (*pinus nigra*, Link).—The range of the black spruce is much the same as that of the white spruce, the former as a rule growing in damp situations, while the latter prefers drier, well-drained soil. The two trees are not separated commercially, and with them is included the red spruce of eastern Canada. The characteristics of these spruces are almost identical and the woods are used for the same purposes. The black spruce, to which the red spruce is nearly allied, is perhaps best suited for use as spars and masts. In the eastern provinces spruce is the chief wood used in housebuilding and for flooring. Both black and white spruce have been found to increase in value as pulp woods the farther north they grow.

Exhibits: Sections of trees, square timber, deals, polished panels, box shooks, and pulp wood.

WHITE SPRUCE (*Pinus alba*, Link).—Within the past few years the demand for pulp wood has so increased that the spruces are rapidly becoming the most important trees in Canada. The value of the growing timber is probably already as great as that of all other trees combined. The white spruce ranges from Nova Scotia northwestward to within 20 miles of the Arctic Ocean near the mouth of the Mackenzie River, and with the black spruce it forms a great part of the subarctic forest which extends from Labrador across the continent. The wood is tougher, stronger, and more elastic than that of pine. It is now more used than formerly as lumber, as well as very largely as railway ties, fence posts, piles, and telegraph poles.

Exhibits: Sections of trees, square timber, deals, boards, polished panels, box shooks, and pulp wood.

ENGELMANN'S SPRUCE (*Picea Engelmanni*, Engel).—This characteristic spruce of the Rocky and Selkirk mountains is the most useful tree growing in the interior for trestle work and for heavy construction work generally. In the valley of the Columbia it is often more than 150 feet in height and 4 feet in diameter. The wood is very like

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that of the black and white spruces and may be used for the same purposes. This was the chief used in the construction of the Canadian Pacific Railway from the Rocky mountains westward.

Exhibits. Sections of trees.

MENZIE'S SPRUCE—SITKA SPRUCE (*Picea Sitchensis*, Carr).—This spruce grows chiefly in the immediate vicinity of the coast, ranging in British Columbia from the international boundary north to Alaska. In the southern part of the Province it grows scattered among other trees, but in the north it is relatively much more abundant, growing sometimes in large clumps. Though averaging less in diameter than the Douglas fir, occasional trees of great size are found; those cut for lumber are, however, seldom more than 5 or 6 feet in diameter. No other tree on the west coast is used for such varied purposes, and as it is easily worked up by machinery there is great demand for it in the manufacture of doors, window sashes, boxes, shelving, and interior finishing. The wood is very white, is elastic, and bends with the grain without splitting, so that it is much used in boat building, the making of light oars, staves, wooden ware, etc. It resists decay for a long time, and like the Douglas fir, is not attacked by insects. The chief value of the Sitka spruce will, in the near future, be in the manufacture of pulp, for which purpose it is not excelled by any other tree. As soon as pulp mills are established in the vicinity of the large sawmills the immense waste entailed by the present method of sawing dimension lumber in British Columbia will be obviated.

Exhibits. Sections of logs, rough and dressed lumber, box shooks, and polished paneling.

HEMLOCK (*Tsuga canadensis*, Carr).—The hemlock grows in the maritime provinces, Quebec and Ontario. Though little inferior to white pine as rough lumber, a prejudice has for a long time existed against this wood which is only now dying out. As coarse lumber, it to-day commands almost as high a price as pine. It is one of our best woods for wharves and docks, and great quantities are used annually for piles. The bark of the hemlock is that chiefly used in Canada and the eastern United States for tanning purposes.

Exhibits. Section of tree, railway ties, and tan bark.

WESTERN HEMLOCK (*Tsuga mertensiana*, Carr).—The hemlock is abundant along the whole coast of British Columbia and in the interior of the Province wherever there is sufficient rainfall. Along the line of the Canadian Pacific Railway, in the Selkirk Mountains, it is very abundant, but seldom over 150 feet in height and 3 in diameter. On the coast it is much larger, averaging from 4 to 6 feet in diameter. The abundance of other wood of better quality has prevented the hemlock from coming into general use, and the same prejudice exists in British Columbia against the western tree that prevailed until very recently against hemlock in eastern Canada. Though its grain is coarse, western hemlock is, for many purposes, just as serviceable as other woods which cost more. Its bark is rich in tannin, but it is too thin to be extensively used while there is such an abundance of Douglas fir in the same region.

Exhibits. Sections of trees, deals, and boards.

DOUGLAS FIR, "OREGON PINE," RED PINE, YELLOW FIR (*Pseudotsuga Douglasii*, Carr).—This is the most abundant, as it is the most valuable tree in British Columbia. Its range on the mainland is from the international boundary north to the Skeena River, in latitude 54° on the coast, and in the Rocky Mountains from the international boundary north to latitude 55°, though its northern and northeastern limits are not well defined. It is not found in the Queen Charlotte Islands. It attains its greatest size on Vancouver Island or along the shores and in river valleys near the coast on the mainland. There trees 300 feet in height are not rare, the average height of those felled for lumber being over 150 feet. Trees of a greater diameter than 7 feet are rarely cut, though those of 8, 10, or 11 feet in diameter are not rare.

The fact that the largest trees are found near the coast greatly facilitates the transport of the logs from the woods to the mill, and as the majority of the mills are so situated that the largest ships may load within a few yards of the saws, the cost per 1,000 feet of handling Douglas fir and other west-coast lumber is small.

The average cut of Douglas fir in British Columbia is over 50,000 feet per acre, though in some instances more than 500,000 feet have been cut on a single acre, no trees of less than 2 feet or more than 5 in diameter being used. Douglas fir is chiefly valuable for structural purposes, being largely employed in shipbuilding, bridge work, and the construction of wharves. It is exported as dimension timber, lumber, spars, masts, and piles. Locally it is used for construction work of all kinds, fencing and railway ties, and in the manufacture of furniture. Its durability when excluded from the air adds greatly to its value for pile work in the construction of bridges and wharves. The bark of the Douglas fir is largely employed in tanning.

Exhibits: Sections of logs, square timber, railway ties, deals, boards, box shooks, and dressed and polished material for interior finishing.

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BALSAM (*Abies balsamea*, Miller).—The balsam is a common tree in the eastern provinces, Ontario and Quebec, and is found in the subarctic forest northwesterly to the Athabasca River. The wood is very light and soft, and is not durable in contact with the soil. It is to some extent used as common lumber, and on account of its lightness is frequently made into box-shooks. Though not one of the best pulp woods, it is, and will continue to be, cut with other trees and used for that purpose.

Exhibits: Sections of trees, deals, and pulp wood.

WESTERN WHITE FIR (*Abies grandis*, Loud).—The western white fir is confined to the vicinity of the Pacific coast, and though it grows to great size, the wood is very soft and not suited for any purpose for which strength is requisite. It is now used to some extent for boxes and light barrels, and will in the future be utilized in the manufacture of pulp.

Exhibit: Section of tree.

TAMARAC—BLACK LARCH (*Larix Americana*, Michx.).—The larch ranges from Nova Scotia northwesterly to the Peace River. The wood is hard, heavy, and very strong. It is not much used as lumber, but is largely employed as railway ties, fence posts, telegraph poles, and as knees for ships, and in fact for shipbuilding purposes generally. It is well adapted for use as joists, scaffold poles, and rafters, as comparatively small timber is capable of supporting a great weight. The Western Larch, *Larix occidentalis*, and the Mountain Larch, *Larix Lyallii*, replace *L. Americana* in the Rocky Mountains and British Columbia. where they are used for lumber, telegraph poles, railway ties, and mine props.

LIST OF CANADIAN FOREST TREES WITH THEIR DISTRIBUTION IN THE VARIOUS PROVINCES AND DISTRICTS.

Few other countries produce so great a variety of trees as Canada. Of the 121 indigenous species, a few are of small economic value, while others are so restricted in their distribution that commercially they can not be taken into account. The various uses of the more important trees, with their distribution, have been given in another part of this paper, but the following list of the 50 most valuable trees, with their range, will serve for convenience of reference. The provinces or districts in which they are found are indicated by an asterisk.

No.	Name of tree.	Prince Edward Island.	Nova Scotia.	New Brunswick.	Quebec.	Ontario.	Manitoba.	Northwest Territory.	Rocky Mountains.	British Columbia.
1	Tilia Americana, L (basswood)			*	*	*	*			
2	Acer macrophyllum, Pursh. (broad-leaved maple)									*
3	Acer saccharinum, Wang. (hard maple)	*	*	*	*	*				
4	Acer dasycarpum, Ehrh. (silver maple)			*	*	*				
5	Acer rubrum L. (soft maple)	*	*	*	*	*				
6	Negundo aceroides, Moench. (Manitoba maple)						*			
7	Prunus serotina Ehrh. (black cherry)	*	*	*	*	*				
8	Fraxinus Americana, L. (white ash)	*	*	*	*	*				
9	Fraxinus pubescens, Lam. (red ash)		*	*	*	*	*			
10	Fraxinus viridis, Mx. (green ash)				*	*	*			
11	Fraxinus sambucifolia, Lam. (black ash)	*	*	*	*	*				
12	Ulmus fulva, Mx. (red elm)				*	*				
13	Ulmus americana, L. (white elm)	*	*	*	*	*	*			
14	Ulmus racemosa, Thomas (rock elm)				*	*				
15	Platanus occidentalis, L. (buttonwood)					*				
16	Carya alba, Nutt (shell-bark hickory)				*	*				
17	Betula lenta, L. (cherry birch, black birch)		*	*	*	*				
18	Betula lutea, Mx. f. (yellow birch)	*	*	*	*	*				
19	Betula papyrifera, Marsh (white birch)	*	*	*	*	*	*	*	*	*
20	Ostrya virginica, Willd (iron wood)		*	*	*	*				
21	Quercus alba, L. (white oak)				*					
22	Quercus garryana, Dougl. (western white oak)									*
23	Quercus macrocarpa, Mx. (Overcup oak)		*	*	*	*	*			
24	Quercus, rubra, L. (red oak)	*	*	*	*	*				
25	Quercus palustris, Du Roi (pin oak)					*				
26	Castanea dentata, Marsh (chestnut)					*				
27	Fagus ferruginea, Ait. (American beech)	*	*	*	*					
28	Populus tremuloides, Mx. (aspen poplar)	*	*	*	*		*	*	*	*
29	Populus balsamifera, L. (balsam poplar)	*	*	*	*	*	*	*	*	*

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No.	Name of tree.	Prince Edward Island.	Nova Scotia.	New Brunswick.	Quebec.	Ontario.	Manitoba.	Northwest Territory.	Rocky Mountains.	British Columbia.
30	Populus monilifera, Ait. (cottonwood)				*	*	*	*		
31	Juglans cinerea, L. (butternut)			*	*	*				
32	Juglans nigra, L. (black walnut)					*				
33	Thuya occidentalis, L. (arbor vitæ)	*	*	*	*	*	*			
34	Thuya gigantea, Nutt (giant arbor vitæ)								*	*
35	Thuya excelsa, Bong. (yellow cypress)									*
36	Pinus strobus, L. (white pine)	*	*	*	*	*	*			*
37	Pinus monticola, Dougl. (western white pine)								*	*
38	Pinus resinosa, Ait. (red pine)	*	*	*	*	*	*			
39	Pinus banksiana, Lam. (scrub pine)	*	*	*	*	*	*	*		
40	Pinus murryana, Balfour (black pine)							*	*	*
41	Picea nigra, Link (black spruce)	*	*	*	*	*	*	*	*	*
42	Picea alba, Link (white spruce)	*	*	*	*	*	*	*	*	*
43	Picea engelmanni, Engelm. (Engelmann spruce)								*	*
44	Picea sitchensis, Carr (Sitka spruce)									*
45	Tsuga canadensis, Carr (hemlock)	*	*	*	*	*				
46	Tsuga mertensiana, Carr (western hemlock)								*	*
47	Pseudotsuga douglasii, Carr (Douglas fir)							*	*	*
48	Abies balsamea, Miller (balsam fir)	*	*	*	*	*	*			
49	Abies grandis, Lindl. (western balsam fir)									*
50	Larix americana, Mx. (tamarac)	*	*	*	*	*	*	*	*	*

Statement of the value of lumber and other wood products exported from Canada between 1894 and 1903.

Principal articles.	Values.				
	1894.	1895.	1896.	1897.	1898.
Wood, unmanufactured:					
Firewood	$287,036	$222,189	$222,389	$173,921	$140,897
Hop, telegraph, and other poles	71,789	39,730	50,503	61,232	36,126
Logs—					
Elm	152,221	205,084	124,988	77,978	53,784
Pine	2,459,354	1,860,725	1,423,989	1,832,352	1,616,671
Spruce	107,282	90,990	86,075	107,073	33,885
Other	142,990	76,616	96,269	108,699	95,977
Lumber—					
Deals, pine	2,768,238	2,369,027	3,061,537	3,313,357	3,885,448
Deals, spruce and other	5,567,739	5,271,898	5,579,746	7,094,485	7,918,366
Deals, ends	484,324	464,260	520,646	637,193	641,068
Laths, palings, and pickets	552,171	495,860	528,395	515,276	376,281
Planks and boards	7,964,970	7,441,256	8,513,710	10,832,185	5,625,391
Joists and scantlings	187,438	184,680	402,454	437,974	246,273
Staves and headings	641,460	638,272	701,983	699,431	401,583
Shingles	754,743	689,613	899,547	1,201,562	994,438
Sleepers and railway ties	131,765	130,208	213,622	229,780	101,191
Timber, square—					
Birch	127,591	111,305	228,876	194,080	143,623
Elm	143,809	163,866	209,409	170,689	222,529
Oak	579,557	411,476	614,028	540,288	740,502
Pine, red	74,458	34,688	108,436	52,439	62,011
Pine, white	1,571,731	4,125,837	1,570,652	1,352,669	1,764,074
Other	152,696	93,603	120,999	83,948	76,343
Wood for pulp	393,260	468,359	627,865	711,152	912,041
Wood manufactures:					
Household furniture	144,702	99,150	78,607	127,752	248,317
Doors, sashes, and blinds	158,196	139,402	190,004	285,161	324,610
Matches and match splints	216,038	172,159	195,987	151,276	195,779
Wood pulp	547,836	590,874	675,777	741,959	1,210,923
All other wood and manufactures of	1,396,958	1,743,009	1,760,306	1,312,418	1,294,956
Total	27,780,352	25,334,136	28,806,799	33,046,329	29,363,087

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Statement of the value of lumber and other wood products exported from Canada between 1894 and 1903—Continued.

Principal articles.	Values.				
	1899.	1900.	1901.	1902.	1903.
Wood, unmanufactured:					
Firewood	$123,711	$117,751	$90,905	$91,507	$115,769
Hop, telegraph, and other poles	55,182	48,872	68,720	103,981	57,910
Logs—					
Elm	44,687	74,721	193,749	54,245	15,517
Pine	1,398,454	494,311	285,798	175,684	139,406
Spruce	49,769	63,078	235,826	63,555	59,781
Other	76,792	128,526	340,238	272,356	219,854
Lumber—					
Deals, pine	4,193,628	3,286,598	2,857,822	3,167,383	3,653,917
Deals, spruce and other	7,848,437	8,287,960	8,174,304	7,451,148	8,315,454
Deals, ends	770,458	564,869	681,384	472,015	551,769
Laths, palings, and pickets	432,323	532,106	605,693	840,714	1,041,129
Planks and boards	6,885,762	9,618,526	9,400,469	12,570,849	14,008,846
Joists and scantlings	234,968	235,664	389,253	367,965	451,194
Staves and headings	527,131	549,836	440,083	301,047	284,412
Shingles	976,361	1,131,506	1,146,150	1,525,386	1,610,143
Sleepers and railway ties	84,305	221,906	152,940	182,198	210,948
Timber, square—					
Birch	204,180	229,554	223,380	107,861	204,690
Elm	221,663	205,131	273,579	248,296	305,090
Oak	557,592	405,608	317,286	356,913	434,141
Pine, red	61,061	65,601	143,530	30,922	219,991
Pine, white	1,356,654	1,254,457	916,452	923,795	1,310,557
Other	80,584	101,694	247,747	103,818	98,764
Wood for pulp	842,086	902,772	1,397,019	1,315,038	1,558,560
Wood manufactures:					
Household furniture	356,490	382,623	241,826	285,276	378,093
Doors, sashes, and blinds	378,206	299,359	194,168	303,687	331,976
Matches and match splints	257,981	103,961	89,130	51,704	112,048
Wood pulp	1,274,376	1,816,016	1,938,246	2,046,406	3,150,943
All other wood and manufactures of	1,587,733	1,875,185	2,115,660	1,820,454	2,027,114
Total	30,880,630	32,998,171	33,161,357	35,234,203	40,868,016

TIMBER ON DOMINION LANDS.

A part of the address of E. Stewart, dominion superintendent of forestry, on "Forestry on dominion lands," delivered before the Canadian Forestry Association in Ottawa, January 10, 1906:

According to the census returns for 1891 the total land area under the control of the Dominion Government is 2,656,200 square miles. Of this the bare prairie probably occupies 160,000,000 acres or 250,000 square miles. The barren lands of the Far North I have elsewhere estimated at four times that of the prairie, or 640,000,000 acres or 1,000,000 square miles. These two would make 1,250,000 square miles of treeless land, and subtracting this from the total land area under federal control will give us 1,406,200 square miles, which is more or less wooded. The total land area owned by the Provinces aggregates only 963,618 square miles, so that the dominion timbered land, according to the estimate, exceeds the total land area both timbered and cleared up of all the old Provinces by 442,582 square miles.

But it may be truly said that on a very large proportion of this the forest growth is of little value for commercial purposes. Let us make due allowance for this and estimate that only one-fifth of this land contains timber fit for such purposes. One-fifth of 1,406,200 gives 281,240 square miles.

We have now taken from the total land areas under dominion control the barren lands of the Far North and the prairie land and then taken only one-fifth of the remainder in our estimate to represent the area of land containing merchantable timber; and we have still left 281,240 square miles. Suppose that the latter area contains only 2,000 feet b. m. to the acre, or 1,280,000 feet to the square mile over ten inches at the stump, and we have left after all these reductions 359,987,200,000 feet of mature timber, which at the low rate of royalty to the government of $1 per thousand would be $359,987,200, which sum represents but a small part of its value to the community and does not include the smaller growing timber, which should be regarded as the agriculturist does his growing crop. It is true that much of this timber is not at

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present available, but it is a portion of the nation's inheritance, and the government as trustees of the state are in duty bound to conserve it whether it is used by those now living or reserved for future generations.

This vast area represents Canada's wood lot. Let us save it while we may. The greater part of the timber is growing on land unsuited for agriculture either from its high altitude or high latitude. We have in that great region, which is well described as our subarctic forest belt, a vast tract of such land. The spruce tree abounds everywhere, and as it is the most desirable of all varieties for pulp it is even now being looked after for that purpose. This region, too, is the home of a great variety of the most valuable of the fur-bearing animals whose existence is dependent on the preservation of the forest. Within it are many great lakes and rivers which, owing to the cool temperature of the water, contain fish of the finest quality. (Pages 27 and 28 of the Seventh Annual Report of the Canadian Forestry Association, 1906.)

Article in the Toronto Globe of February 29, 1908, entitled "The Work of the Dominion in Forestry," by Hon. R. H. Campbell, superintendent of forestry, department of interior, Ottawa:

The forestry work of the Dominion government falls naturally into two divisions. One is the planting of trees on the bare prairies and the other the protection and restoration of the forested districts.

Nothing can more certainly assure a contented and happy people than comfortable and attractive homes. The bareness of the plains, their exposure to the winds and the difficulty of obtaining a supply of wood for fuel and other purposes impressed themselves strongly on those who seriously considered the possibilities of future settlement.

An attempt to improve the conditions of settlement on the prairies was made in 1876 by an act providing for "forest tree culture claims." Under this provision a grant of 160 acres was to be made to a settler after six years' residence on condition of his planting 32 acres with trees. Each applicant was required to make an affidavit that the land applied for was open prairie and without timber. Two hundred and fifty-three claims were taken up, but only six persons completed the duties. The reason of the practical failure of this experiment was undoubtedly the lack of knowledge of the trees suitable for growth in the west and of the proper methods of caring for them.

When Mr. E. Stewart was appointed Dominion superintendent of forestry in 1899 this was one of the first questions to which he gave consideration. The conditions to be provided for, if the settler was to make a success of tree plantations, were: A proper selection of species, a supply of material for planting easily obtained and at a low price, adequate preparation of the land by cultivation, and care after planting.

The method evolved for arriving at this result was the following:

A settler requiring trees is required to make formal application to the department before the 1st of March. The lands of such settlers are visited during the following summer by one of the inspectors of the forestry branch. These inspectors are men who have a thorough knowledge of tree planting, and who have had experience in the west. They go over the land of the applicant, advise him as to where the shelter belt or wood lot should be located, the species of trees which will suit the soil and moisture conditions, and ascertain whether the land has been properly prepared. If the inspector reports favorably and the applicant signs an agreement to plant and care for the trees, the department furnishes the necessary plant material free to the settler in the following spring.

The reason which induced the government to undertake to furnish nursery stock to the farmers was that it could not conveniently or easily be obtained. The Canadian nurseries were not in a position to supply the quantities required even if the settlers had been in a position to pay the prices asked; the collection of trees growing naturally was impossible in some places, and in any case the stock so obtained was likely to be injured by careless handling and exposure, leading to poor and discouraging results. The nursery stock for this distribution is grown at the Dominion government's nursery at Indian Head, Saskatchewan, which is under the charge of Mr Norman M. Ross. This nursery comprises an area of 320 acres, and from it there is shipped every spring nearly two million trees to all parts of the western prairie provinces. There is an exceedingly busy scene at the packing shed during the short weeks when the shipping is done, for it is an operation that can neither be begun too early nor delayed too long without injury to the stock.

In choosing the species of trees to be distributed it was considered best to select native species, known to be hardy, which could be handled easily and would grow rapidly. The trees which answer these conditions best are the Manitoba maple (Negundo aceroides), the cottonwood (Populus monilifera), the American or swamp elm (Ulmus americana), and the green ash (Fraxinus viridis).

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The Manitoba maple grows easily and rapidly from seed, and will adapt itself to a great variety of conditions. It has been a favorite for planting in the west, as in a few years it reaches tree size and gives a good shelter. In other respects it is not of great value, but the wood makes excellent fuel. In southern Alberta it has not succeeded well, owing, probably, to the Chinook winds forcing growth at the wrong time, with a consequent nipping back of the shoots by the frost.

The cottonwood is found growing naturally along river bottoms, and it thrives best when planted on heavy clay soils or where it can get a fair supply of moisture. The growing of cottonwoods in the nursery from seed has not been undertaken, as these can more easily and cheaply be obtained by purchasing from firms who make a regular business of gathering seedlings from the sand bars along the rivers and distributing them to nurserymen. The cottonwood grows rapidly, and is, therefore, planted extensively.

One of the best trees for general purposes is the American elm, as not only does it grow quickly, but the wood is hard and durable and is useful for a variety of purposes. For permanent plantations it and the green ash will be the most valuable. The ash grows more slowly, but the wood is of sufficient value to compensate for this. These trees can best be grown in mixture with other species.

No coniferous trees have been included in the general distribution. Coniferous trees are much more difficult to handle than broad-leaved trees; the roots dry out more quickly, and are therefore much more liable to injury in shipping and setting out, and, as a rule, they grow slowly. These reasons influenced the department to deal for the present with broad-leaved trees only. The coniferous trees native to the prairie province are white spruce, black spruce, balsam fir, tamarack, jack pine (Pinus banksiana), scrub pine (Pinus murrayana), and Douglas fir. These have been experimented with, and the results indicate that the tamarack is one of the most useful trees that can be grown in the west. It makes a rapid growth, and is a clean and healthy tree. While it grows naturally on swampy lands, it succeeds well on high land. For fence posts and other purposes it can not be surpassed. Outside of the native species the coniferous tree which has succeeded best is the Scotch pine (Pinus sylvestris). With the persistence characteristic of its name, it grows under almost all conditions.

One of the difficulties the trees have to contend with is the dense growth of prairie grasses and the consequent loss of moisture by evaporation. To meet this difficulty the trees are planted close together, 3 or 4 feet apart, so that the ground will soon be shaded sufficiently to prevent the growth of weeds and grasses, and the owner is required to keep the land cultivated for at least two years until that condition is reached.

During the first year (1901) that the cooperative planting scheme was in operation 50,000 trees were distributed, and by the present year this had grown to 1,952,000. In all there have been distributed up to the present time 8,471,092 trees to 3,328 settlers. The success which has attended the plantations has been gratifying. The reports of the inspectors show that from 85 to 90 per cent of the trees which have been set out in the plantations are growing satisfactorily.

Anyone who visits the prairie districts of the West and sees the contrast between the bare, unsheltered homestead and the sheltered and comfortable home which the trees make possible can not fail to be impressed with the great improvement in conditions. The trees break the harsh lines of the buildings and lend a pleasing effect to the landscape. They shelter the home and farmstead and make them cosy and attractive. In the shelter of these tree belts and as a result of the incentive given by them to an interest in natural objects and the beautifying of the home, gardens and hedges are planted, and there are gardens and grounds surrounding farmhouses on our western prairies that are equal to those found in any other part of the Dominion. These are beautiful in themselves, and they also serve as object lessons for the districts in which they are situated. Others living in the vicinity are incited to make their homes attractive also, and frequently, not caring to wait for the slow and sure methods of the department, they go to the commercial nurseries for stock. The business in nursery stock has grown rapidly in the West, owing largely to the incentive given by the work of the department. This scheme for the distribution of trees is one of the most successful and useful of the department's activities, and is accomplishing results of the greatest benefit to the West.

The department has charge, in addition to the tree-planting on the farms, of the protection and management of the forests of the West. Protection is provided for by a staff of fire rangers in a similar way to that followed by the eastern provinces, so that this phase of the work need not be enlarged upon. It will be sufficient to say that it has been able to accomplish a great deal in preventing fires and saving the forests so much needed in our western country.

On the forest reserves, which, comprising an area of 3,450,720 acres, were set apart by the Dominion forest reserves act in the year 1906, the Dominion government has

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inaugurated a work that has not been attempted elsewhere in Canada. When these reserves were set apart it was felt that the first thing to do after providing for their protection was to find out what timber there is on the reserve, the species, its condition, and at what rate wood is being produced—that is, what timber is now available and what stock could be counted on in the future to be supplied by the annual growth.

The method which has been followed on the Canadian reserves is what is generally designated a strip survey, lines being run by compass on each side from the trails followed by the survey party through the reserves. One man goes first with the compass, taking the front end of the chain. Following him are two men, one on each side of the line, who measure the trees with calipers for one rod on each side of the line, and call out the number, the size, and the species of the trees, all of which is recorded on a tally sheet by a fourth man, who follows at the end of the chain, and also keeps track of the distance the line is run. Streams, muskegs, and other topographical features are noted, the soil is examined, and the undergrowth is recorded. When the whole of a reserve has been covered by such a survey the department is in a position to know what timber it has, where it is located, and how it can most easily be got out.

But more is required. All the time that the survey is going on measurements are taken of specimen trees and the annual rings are counted. This is done with all species, trees which represent a fair average of the different classes being selected. With a sufficient number of specimens this stem analysis will give a reliable average of the tree growth and the wood production.

When such a timber survey is completed the reserves can be properly mapped out and their management can be laid out on scientific lines, which will insure their maintaining their production permanently. Such a survey has been completed on the Turtle Mountain reserve in Manitoba and on the Moose Mountain reserve in Saskatchewan. The survey of the Riding Mountain reserve in Manitoba is well on toward completion, and it is proposed to carry out the same plan with all the reserves.

An advancing civilization calls for more exact and scientific methods in all departments of life and in forest administration there is no exception to this general condition. The setting apart of forest reserves is a step in advance, but it is insufficient in itself unless followed up by an examination of the conditions which must govern a scientific and progressive administration and the adoption of methods leading to that end. The Dominion government can claim the credit for being the first in Canada to take this matter up seriously in connection with the forest reserves under its control.

Article in the Toronto Globe of February 29, 1908, entitled "Canada's forest resources and problems," by William Banks, jr., city editor of the Toronto Globe:

Canada's history for the past few years has been remarkable chiefly for its record o material progress. Her manufactures and industries of all classes have grown beyond the must enthusiastic predictions of those who in the past were steadfast in their belief of the country's future. Territory hitherto practically unknown has become tolerably personally familiar to many and in a general way, through the medium of the press, to all. Where once Indian paths—and often no human paths of any kind—were to be found, surveyors, the modern advance guards of the white man's civilization, have planned the routes of railway lines or colonization roads. The tide of emigration of the best class has turned Canadaward. Everywhere optimism in the present, unbounded confidence in the future, have been manifest. They are just as strong to-day as at any time in the past decade, but the varied forces that combine in the making of the trade and commerce of the country are not at the moment so tremendously active. There is a lull, traceable to a variety of causes, none of them permanent, and Canadians are using the opportunity it affords to do a little stock-taking. Presently, with renewed energy, the advance will be resumed with irresistible force, for the progress of Canada to a place among the foremost nations in the world can hardly be stayed. by human agencies at any rate.

In the stock taking made possible by this temporary breathing spell one question calling for the earnest thought of all who are sincerely interested in the country's future—thought that should be crystallized into action on a well-defined and broad plan—is the method of dealing with one of Canada's greatest natural resources—the forests. It is not alone a question for the authorities of the various governments, provincial and dominion; it is a matter that vitally concerns every manufacturer, every farmer, every worker in Canada. The fact that many of them have never given it a moment's thought, because forest products are not directly handled by them in their buisnesses or trades does not alter the case; the situation is one that requires their attention as it does that of the man who owns a timber or pulp-wood limit and is principally concerned in reaping a profit from his investment therein. A country so fortunate as to possess great forest areas has no right to lay claim to ordinary business acumen if

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they are not so dealt with as to insure a perpetual source of heavy annual contributions to its wealth. Yet in Canada, while there are signs of an awakening, there is still a most lamentable apathy on the forestry question. The bulk of the people clearly do not understand how closely this is related to questions of water supply, agriculture, the expansion of manufacture by the upbuilding of the lumber, pulp and paper making industries, and the consequent general prosperity of the community as a whole. But the indications of the approach of the time when this lethargy will be replaced by an aroused public opinion are hopeful, and when the public demand anything they usually get it.

It must be admitted that the people, or a large portion of them, have had good grounds for their lack of concern up to the present in regard to the forestry question. They have been so used to hearing from public men, and to reading in articles and stories, of "the inexhaustible forest supplies" of Canada that they have come to believe that the phrase means exactly what it says. In many sections of the United States to within a few years ago the people were imbued with the same idea, and their faith, too, was largely founded on the equally fallacious reasonings. All over this continent, however, many people, even of the present generation, have had ocular proof of the unsoundness of the phrase. They have seen sawmills and other lumber manufacturing establishments in their neighborhoods close down after years of activity because the raw material in the immediate vicinity had become exhausted, and the nearest sources of supply were too far away to be commercially available. Too often the very people who have experienced this have accepted the situation as one absolutely unavoidable, have, in fact, in no irreverent spirit looked upon it as a decree of Providence, and have made no attempt to investigate as to whether other methods of dealing with the asset at their doors would not have produced more lucrative and more lasting results. In the United States to-day the forestry question is regarded as a critical one, the authoritative assertion having recently been made that the exhaustion of that country's supply of timber is in sight. Is Canada to wait until that can be said of her supply before any adequate action is taken? True, something has been and is being done now, but in the opinion of men best qualified to speak these steps are not sufficient to guard Canada against experiencing the conditions that are now causing alarm in the United States. For the most part Canada's timber is being cut with prodigal vigor. A considerable quantity is manufactured in the country, but much more might easily be done here; while, in respect to pulp wood, rapidly increasing quantities are being exported to the United States to build up the pulp and paper-making industries of that nation. There is no duty on this raw material; the United States gets it free of duty, handicaps the Canadian pulp and paper industries by putting a duty on their output going into the Republic, and tries to undersell them in the British market with pulp and paper made from Canadian wood.

It is worth while, even on a purely cash return basis, that Canada should be concerned for and should take steps to perpetuate the returns from the forest resources. Time was when, and especially in Ontario, which had and still has, though in a greatly diminished ratio, the largest quantity of it, white pine was the chief wood cut for both domestic and export trade. Now, with the realization that the pine is disappearing, there is a greater care for it on lands still held by the Crown, and coincidentally more attention is being paid to spruce. The areas of this wood in Ontario and Quebec particularly are tremendous; New Brunswick and Nova Scotia also have considerable quantities of it; while in British Columbia the forests are of Douglas fir, the giant arbor vitæ, Menzies or Sitka spruce, yellow cypress, and the western hemlock.

In a pamphlet issued by the Dominion department of agriculture in 1904, and entitled "The Forest Wealth of Canada," reasons are given for the extravagant methods of lumbering operations in British Columbia, which, though somewhat improved of late, are still less economical than those followed in the eastern sections, where there is yet lots of room for improvement. Dr. Robert Bell, of the Dominion geological survey, is quoted in the pamphlet mentioned as follows in respect to the extent of Canada's northern forests:

"The central line of the forest belt may be described as starting from the vicinity of the Straits of Belle Isle and following a west-southwesterly course till it passes to the south of James Bay; then turning northwest, it follows this course all the way to the border of Alaska, opposite the mouth of the Mackenzie River, the total distance being 3,700 miles."

It is stated that the average breadth of this belt, on the basis of measurements at ten almost equal intervals, is 700 miles, giving an approximate area of the northern forests, in which the black and white spruces are the prevailing trees, of 2,500,000 square miles. Bearing in mind that the great bulk of the paper consumed in the world is made from spruce wood, Canada has, in the area mentioned, the raw material to enable her to become the center of the world's supply of paper. This subject will

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be reverted to later. For the moment, some figures relative to the present values of Canada's forest crop are worthy of notice.

In the nine months ending March 31 last the products of the forests exported from this country reached an aggregate value of $33,587,474, of which material to the amount of $12,502,204 went to the British Empire and $21,085,270 to other countries. When the home consumption, which is practically impossible to get, is added, the figures would be larger. The value of the lumber sawn in Ontario in 1905, for instance, is given in The Handbook of Ontario, an officially authorized publication, at $31,626,222. These are remarkable figures, particularly when it is taken into account that, unlike the situation as it relates to the farm, man has done little—practically nothing—toward making this "forest crop" possible, but he is doing considerable toward making it an impossibility. Providence has given the country a great asset, and because the country has not had, by the physical and mental toil of its husbandmen and others, to till the ground, sow the seeds, and care for the forest crop in all ways possible to humanity, as the farmer must do for his crops and lands, the general tendency is to get the best possible cash return for it now and let the future take care of itself. Consider, too, for one moment the fact that the lumbering industry is an all-the-year-round one. In the winter gangs of sturdy men plunge into the forests to cut down and prepare the trees for their journeys by water or rail to the mills, though these are not always home mills. But whether at home or abroad, the lumber and pulp and paper mills keep large forces of men busy throughout the season, and often throughout the year. The "lumber jack" himself, the man who cuts the wood in the forest, may not always follow it to its making into the finished product, but in many cases he does, and where he does not he goes back to his farm or his fishing until time for cutting again comes round.

So far as the protection of the forests against one of their greatest enemies, fire, is concerned, Ontario has shown the way to all the other provinces, as well as to the federal government, which, of course, still controls large areas of lands. The system of fire ranging established in this province by the Liberal administration and continued by that now in power, and copied by the other governments, has undoubtedly saved millions of dollars' worth of valuable timber from destruction. A distinctly advantageous step was also taken by Ontario in prohibiting the export of saw logs cut on crown lands, the legislation on the subject requiring the manufacture into sawn lumber here of all logs cut. This can not, of course, be classed as a forest reservation measure, but it did have the effect of bringing to the Canadian side of the border many mills located in Michigan which had been kept going by the logs cut on Ontario limits leased or controlled by Americans. At the least, therefore, Ontario specifically and Canada indirectly is benefited to the value of the labor engaged in the operations.

Ontario was to the fore in another respect, namely, the establishment of forest reserves, the absolute necessity for which is now beginning to be everywhere realized. These now aggregate in Ontario and Quebec provinces very large areas, but there is need for still greater additions to them. This province has also taken much more advanced steps in respect to dealing with its vast areas of pulp wood than has Quebec, the other big pulp-wood province of the Dominion, if such a phrase is admissible. In this province pulp wood cut on crown lands can not be exported; it must be manufactured into pulp or paper in the province. Moreover, in future concessions of pulp-wood areas even this option will not be allowed. The successful tenderers for the concessions will have to make the raw material into paper in Ontario, and the size at which trees may be cut is regulated. This policy, recently decided upon by the government, is definitely laid down in the terms on which recent tenders were called.

In Quebec, a province whose forest resources, particularly of the finest spruce wood, which makes the best pulp, and numerous and commercially adaptative water powers, are marvelous, even in this land of marvels, pulp wood cut on crown lands for export is subject, in addition to the ordinary stumpage dues, to an export tax of only 25 cents per cord. This is not enough to have any effect on export. The consequence is that United States pulp and paper makers, who are now face to face with a pulp-wood famine in their own country and the closing down of their establishments unless they can make sure of continued supplies elsewhere, are getting hold of all the pulp-wood areas in Quebec that they can, whether from private owners or the crown, and are at the same time buying the wood cut by settlers and other private sellers. Conservative estimates are that the export of pulp-wood from Quebec Province to the United States this year from crown and private lands will agregate 750,000 cords. Prices have been increasing right along and have been particularly good in Quebec during the past year; but to be on the safe side, say that the amount left in the province for each cord exported, including labor, transportation, etc., is $8, and that only 500,000 cords are exported, the total return from these 500,000 cords would be $4,000,000. Made into ground pulp the return would be $19 to $20, converted into sulphite fiber it would yield between

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$37 and $38 a cord, and into news print about $45. These values would increase if the pulp was made into paper of the higher qualities.

Suppose, then, that the Dominion authorities absolutely prohibited the export from Canada of pulp wood and the estimated 500,000 cords exported from Quebec last year were manufactured into ground pulp, there would be left in the province, at the lowest estimate ($19 a cord), no less a sum than $9,500,000, or more than twice as much as the amount returnable from the raw material alone. Readers may easily figure out for themselves what the results would be if the manufacture of the pulp into paper were insisted upon.

Because of the small extra stumpage for export on pulp wood cut on crown limits in Quebec, and the prevalence there of the "settler," so called, who has the right to cut all the timber off a lot once he fulfills the easy terms of his location permit, United States interests have up to the present devoted themselves largely to obtaining concessions and Canadian supplies in that province. Now they are turning their attention to Ontario, where the supplies obtainable from the settlers and from other private parties have not been so largely exploited as in Quebec, and where, as stated, pulp wood can not be exported from crown lands. Considerable quantities of pulp wood are now being bought along the Temiskaming and Northern Ontario Railway line and shipped to various States in the southern Republic.

There are still to be met a few doubters who will argue that American interests could get along splendidly without Canadian pulp wood, just as they used to, but do not now use the same arguments respecting lumber, notwithstanding the evidence to the contrary which has appeared and continues to appear in official United States bulletins, and in trade and other journals. All the facts, however, are against them. If they have remained unconvinced, perhaps the response of President Roosevelt to a deputation representing the American Newspaper Manufacturer's Association that waited on him recently to ask that the duty on paper and materials entering into its manufacture be removed will convince them. A number of arguments were advanced in support of their request, including a charge of conspiracy on the part of the makers of news print to keep up the prices. The President promised to recommend to Congress the removal of the duty, and the Fourth Estate, a well-informed weekly publication of New York, in reporting the interview, says: "He will give as his reasons the necessity for the preservation of the forests rather than the relief of the publishers of cheap newspapers and magazines. * * * One of his arguments will be the recent report of Gifford Pinchot, chief forester for the United States Government, who estimates that at the present rate of consumption the wood supply of the United States will have disappeared in twenty years."

Some dispatches from Washington stated at the time that the President's promise was qualified by the statement that he would only favor free importation of pulp and paper if Canada refrained from placing an export duty on pulp wood. In other words, he wanted to give the American forests a chance to recuperate, the American pulp and paper manufacturers in the meantime drawing raw material supplies from this country. This prophecy of the stand the President would take was amply borne out in his message to Congress, in which he said:

"There should be no tariff on any forest product grown in this country; and, in especial, there should be no tariff on wood pulp; due notice of the change being, of course, given to those engaged in the business so as to enable them to adjust themselves to the new conditions. The repeal of the duty on wood pulp should, if possible, be accompanied by an agreement with Canada that there should be no export duty on Canadian pulp wood."

A recent newspaper dispatch from London gives a measure of added significance to the foregoing. It was to the effect that the pulp output of Norway and Sweden, Canada's chief pulp-wood competitor, had practically all been contracted for for the next two years. A very large amount of the pulp from those countries will go to European and British countries. The United States must still look to Canada for supplies of the raw material for the making of pulp and paper. Why should not these industries be retained in Canada?

Important as is this question of the manufacture in the country of Canada's own forest resources, the conservation of them is not less important. It is not alone that they may continue to keep the lumbering and allied industries alive, but, as has been mentioned before, that agriculture may continue to flourish with a reasonable degree of certainty; that the flow of the rivers, with developed water powers or water power possibilities, and the levels of the lakes which bear the expanding fleets of a growing country, may be maintained. The day has gone by when the farmer in old Ontario had little interest in one phase of this question at any rate, as witness the growing realization of the value of the wood lot, of trees as wind-breaks and of their relation

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to the water flow and rainfall. Governments have realized these things, too, and more. The Province of Quebec has followed the example of this province in creating forest reserves; that is, the withdrawing of timber lands for settlement. In recommending from time to time additions to the reserve, the provincial forester, Mr. W. C. J. Hall, frequently comments upon their incalculably valuable bearing upon the water flow of the rivers and the future of agriculture. This is a point that is now emphasized over and over again wherever lumbermen, forestry associations, or scientists meet to discuss forestry questions.

At last year's convention of the Canadian Forestry Association, held at Ottawa, the chairman, Mr. E. Stewart, declared, "No time should be lost in taking steps to reserve the whole timber area along the east slope of the Rocky Mountains in order to preserve the forest there for the conservation of the water for the great rivers that are supplied from this source. * * * If this area is permitted to be denuded of its timber the North and South Saskatchewan, the Athabasca, the Peace, the Liard, and the many smaller streams that receive their supply from this timbered area will be raging torrents for a short period in the spring and almost dry in the hot summer months. The water level in the soil will decrease, and the husbandman of the plains will begin to realize when it is too late why the summer droughts are increasing." To a greater or lesser degree what is here predicted by Mr. Stewart has happened in the older portions of Ontario and Quebec. The time to take steps to prevent further mischief is now.

In bygone days the forests were to a very considerable extent regarded as an enemy to be cleared away with a view to enabling the pioneers to establish agricultural settlements. Later came the time when in these same settlements manufacturing centers were created in the villages, which were to blossom into the towns and cities of to-day, and they wanted lumber. It was near at hand and was cut joyously and liberally, first on the edges of the streams into which it tumbled, there to be floated to designated places. Years passed and the cutting, most of it haphazard, receded from the banks of the streams, the land thus cleared being tilled for the production of grains, roots, and grasses, wherever such would grow. Some of the land of course was unfit for cultivation, but nothing in the way of reforestation was done with it. Forest fires, the more numerous as settlement increased, did a hundredfold more clearing than the axe, though the latter was never stayed. The process continued and now the older sections of the timber-producing provinces are beginning to understand that they have practically lost altogether what they might have held in part at least—a perpetual crop of fine timber. What once were rivers of goodly size and consistent flow are now little more than narrow and shallow streams. By rail mostly, or through the canals and lakes, there come from long distances the lumber once obtainable so near at hand, and the distances whence it must be drawn gradually increase, and so do the prices. And every day brings nearer the time when the country will be asking, "What has become of our 'inexhaustible forest supplies?'"

Should there not be, as has been suggested elsewhere in this somewhat discursive article, a joining together of all the forces interested, with the common aim of conserving the forests in Canada? Is it not possible that interprovincial susceptibilities on the one hand and fear of Dominion interference on the other could be overcome to secure—

Preservation of the forests not now under license at the headwaters of the rivers, so as to insure water supply.

Reforestation of the watersheds in the settled portions of the Provinces.

The manufacture to the greatest possible extent in Canada of the yearly forest cut of all kinds, including at the least the making of all the pulp wood cut in the country into pulp, if not into paper.

Still further protective measures against destruction by fire.

The ascertaining of a practical method, or methods—according to the conditions in the various Provinces—of scientific cutting and other measures of treating existent forest lands so as to aid in making humanly certain the perpetuity of the forest crop.

A broad system for the practical training of men whose life duty will be the care of the forests.

The forestation or reforestation of areas unfit for agriculture.

The suppression of that class of 'settler' who is only a 'settler' until he gets all the wood cut off his location, and who then moves on to another well-timbered lot.

Obviously the initiative in many of these matters rests with the Provinces, and some of them are attempting to deal with them on a broad scale. But the interests of all the Provinces and of the federal government, which likewise controls great stretches of public domain, and of all the forces that work for the country's progress, are so intertwined as to make a united and common basis of action an imperative necessity.

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TIMBER RESOURCES OF NEWFOUNDLAND.

Extract from a paper, entitled, "Forest resources of Newfoundland, and the pulp wood situation in Canada," by Harry I. Crowe, vice-president of the Colonial Forestry Association, found on pages 134 to 136 of the Ninth Annual Report of the Canadian Forestry Association, 1908:

The value of the forests in Newfoundland consists principally in timber suitable for pulp wood, owing to the small and medium size growth of the spruce and fir.

Out of 42,000 square miles comprising the whole island, I should judge there is nearly one-third well wooded, about one-third lakes and rivers, and the balance is barren and agricultural lands.

The timber portion of the island is probably as heavily covered with pulp wood as any country in the world. I have no accurate knowledge as to the number of cords this land will average, except the limits purchased by the Harmsworth Company and the Albert E. Reed Company, of London, England, consisting of 3,500 square miles, a careful examination of which shows an average of from 15 to 20 cords per acre. I think this will be a fairly good criterion of what the balance of the timbered part of the island will average. The wood has been tested for paper making and found satisfactory.

There is also a pine belt running through the Exploits and Gander valleys containing the best grades of white pine now in the market. Shipments of white pine from Newfoundland to South America during the last four years have clearly demonstrated this fact.

* * * * * * * *

In my opinion Canada should not delay in enacting legislation, either by imposing an export duty on, or prohibiting the exportation of, pulp wood, that would, at least, make it necessary to manufacture into pulp the wood now being exported into the United States.

Pulp and paper mills in Wisconsin are paying to-day as high as from $12 to $15 per cord for Canadian wood. Nearly half of this cost is paid for transportation of material, over half of which consists of waste and water, which, of course, is valueless.

There is a strong sentiment in the United States now, backed by the President, for the prompt removal of the duty on pulp, for the purpose mainly of preserving what still remains in the United States forests. This will give an extra impetus to the manufacture of pulp in Canada, provided the exportation of pulp wood is prohibited.

The enormous supply of pulp wood in Canada offers inducement for investment of large capital, in the erection of not only pulp mills, but plants for the manufacture of paper on the largest scale. Canadian labor would then receive at least $20 per cord of the additional cost in producing the finished article, or over three times the amount they now receive on the wood that is exported.

I understand that there are people in Quebec now interested in the shipment of pulp wood to the United States who fear an export duty would limit their market and reduce the value of their wood. I believe if Canada took advantage of her position and prohibited the exportation of pulp wood, a number of the United States pulp and paper manufacturers would immediately erect pulp mills in Quebec. This would give the producer a market practically at his door at an increased price, the natural consequence of increased business operated under favorable conditions.

I have recently put this question to some of the manufacturers of pulp wood in the United States, "What would your Government do if they were in Canada's position, or if the position of the two countries were reversed regarding the control of pulp wood?" They were frank enough to admit that their Government would not hesitate passing a law compelling the pulp wood to be manufactured in their own country.

Some of our people fear that if the Government interfered with the unrestricted shipment of pulp wood into the United States, the United States Government would retaliate by placing an export duty on coal, or in some other way. I think this is a delusion, for the United States Government should appreciate the fact that Canada was perfectly justified in thus preventing a continuous drain upon her forest resources, without receiving some adequate return.

Moreover, the United States Government may not care to risk antagonizing the trade of a country to which her exports increased $20,000,000 during the past year.

In the past, our neighbors to the south of us have always been highly favored in their transactions with the mother country, but I do not think they will have any the less respect for us, if we, in the future at least, see that Canada's interests are properly safeguarded.

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As Canada and Newfoundland largely control the pulp wood in North America, and possess the economic conditions such as an abundance of cheap wood, large water powers and good shipping facilitles, thereby enabling them to produce pulp and paper at the minimum cost; they should eventually be in a position to manufacture a large part of the pulp and paper consumed in the United States and Great Britain.

Some idea of the value of this trade can be conveyed by stating the fact that one publishing house in London uses $3,500,000 worth of news paper annually, in addition to an enormous quantity of high-grade paper for magazines, etc.

In the United States the consumption of news-paper stock alone is 3,000 tons per day, representing in annual value over $35,000,000.

The erection of pulp and paper plants in this country on a large scale would very much increase the home markets for our other manufacturing industries, as well as add to the development of our coal and steel enterprise.

The materials used in the construction and operation of these plants could at least to some extent be produced in Canada.

The Canadian farmer would also be largely benefited by an enlarged market at home for his horses, beef, provender, and other agricultural products.

In view of these facts, thus briefly outlined, why should any Canadian, who has the interests of his country at heart, oppose the legislation referred to, which would add so much to the prosperity of this country? Why should we stand by and allow ruthless inroads to be made upon our forests for the purpose of furnishing raw material for the pulp and paper mills in the United States?

It appears to me that all Canadians should unite in urging the federal government to take prompt action in this vital question, so that Canada, with Newfoundland, will become the greatest pulp and paper producing country in the world.

TIMBER RESOURCES OF NOVA SCOTIA.

An extract from a paper entitled "Forestry in Nova Scotia," by Hon. J. W. Longley, attorney-general and commissioner of crown lands, read before the Canadian Forestry Association, at Quebec, March 10, 1905, and printed in the Sixth Annual Report of the association, 1905, pages 61 and 62:

The extent of ungranted forest lands in Nova Scotia, as set forth in the last crown land report is 1,516,631 acres. I estimate that the number of acres of granted lands now being used for lumbering purposes in Nova Scotia would not be far short of these figures. * * * The quantity of land valuable for lumbering purposes in Nova Scotia has never been, and is not now, large. The timber lands in Nova Scotia which are good are very good, and the existence of numerous streams, lakes, etc., facilitates the manufacture of lumber. And it has been shown by actual experience that the growth of timber will equal the amount cut by the lumbermen each year, provided that lumbering is carried on on a sound and economical basis. Large lumbermen in Nova Scotia cut only the larger trees in any one locality during the lumbering season, and then pass on to another, adopting the same principle, and the growth is such that in ten or twelve years another cut is available. In years gone by the Government was in the habit of granting outright to lumbermen land for lumbering purposes at 40 cents an acre, and the grant was absolute and conveyed the fee simple of the land to the grantee. * * * This system of granting in fee simple was terminated in 1889, and it was provided that each lot of timber land should be leased for twenty years instead of granted outright, and the price was made 40 cents per acre in the case of land on which the timber to be cut should not be less than 10 inches in diameter, and a lease to meet the case of pulp wood in which timber could be cut at 6 inches diameter was to pay 50 cents per acre. During the last season, 1904, the price for this land just doubled; 80 cents per acre for the timber land and $1 per acre for the pulp lease.

An extract from the address of Mr. E. G. Joly de Lotbinière, president of the Canadian Forestry Association, delivered by him in Ottawa, January 10, 1906 (page 21 of the Seventh Annual Report of the association):

The area of crown timber lands in Nova Scotia is small, not exceeding 1,516,631 acres, but the government is alive to the necessity of protecting what it has. Nova Scotia has had a fire act on its statute books since 1883, but it has accomplished noth-

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ing in the past, as no effective machinery had been provided for putting it into execution until 1904. An act was then put into operation in several counties and has proved most effective. Reforestation and the setting apart of tracts of land at the head of navigable rivers is also receiving serious consideration.

Article in the Toronto Globe of February 29, 1908, entitled "Riches of the Nova Scotia Forests," by Arthur S. Barnestead, secretary of industries and immigration for Nova Scotia:

The total land area of Nova Scotia is 14,483,000 acres, and of this 5,000,000 acres, or 7,812 square miles, is forest area. Less than this quantity is actually forested land, though more is suitable for forest production. Fifty-six per cent of the farms in Nova Scotia are composed of woodland.

The forest has been the next source of living on the southwestern coast to the fisheries since the early settlement. Mr. Frank Davison, who has been closely connected with the forest industry all his life, is now cutting pulp wood from lands owned in his family since 1790.

The counties of Queens and Lunenburg have yearly produced 50,000,000 feet of lumber for export, foreign and local, and the consumption of that district would likely take as much more for the last forty years, so that the forest has contributed very largely to the prosperity of the people. The shipbuilding industry has also consumed a very large amount of timber. The wood-pulp industry has consumed 20,000 to 25,000 cords of wood yearly.

At a very early date in the settlement of the eastern part of the mainland of Nova Scotia large quantities of birch, spruce, and pine timber were shipped from the port of Pictou. This lumber was all shipped at first in the form of hewn timber. Shipbuilding began first as an adjunct to this timber trade—ships very roughly built and loaded with timber cargoes being sent to the old country, where both ship and cargo would find a ready market. Gradually the pine became exhausted, and the timber shipped during the palmy days of wooden-ship building was largely birch, with a proportion of spruce battens cut in the old "up-and-down" saw mills.

When Doctor Patterson wrote his history of Pictou County thirty years ago he stated that a little birch was left in the remote portions of Pictou, but that the spruce was all exhausted. Since that date, with the advent of portable steam mills, there has been probably three times as much spruce cut even in Pictou County as in the century preceding.

The same would apply to both Cumberland and Colchester counties. Less than a score of years ago it was stated that the end of the lumber trade of Cumberland County was in sight, owing to the reckless and injudicious cutting of the lumbermen. However true this statement may have been of the character of their operations in the past, neither the recuperative powers of the forest nor the reserves of standing timber were estimated at their real value. Timber lands have several times since then changed owners, and always at values above their original cost.

The lumber cut in 1907 has been estimated to have been between three hundred and four hundred million feet. The very favorable weather conditions in the early part of the year caused a larger log output than usual. Owing to the drop in prices and the financial stringency in the United States, the quantity marketed was much below this amount.

The total exports of lumber from Nova Scotia through the various out-ports were 262,289,995 feet. Of this quantity over 100,000,000 feet were exported through the western counties of Annapolis, Digby, Yarmouth, Queens, Shelburne, and Lunenburg; over 86,000,000 feet were shipped from Halifax and Halifax County ports; from Hants County 28,000,000 feet; from Cumberland County ports about 40,000,000 feet, and from Pictou, Guysboro, and eastern Nova Scotia generally an export of over 7,000,000 feet.

The forest products of Nova Scotia—the figures of the census of 1901 are given—were valued at $3,409,528. In 1907 their values were placed at $3,750,000. In square, waney, or flat timber, $109,102, consisting chiefly of birch $47,783; pine, $12,923; maple, $4,124, and oak, $4,164. Logs for lumber, $1,938,936, of which spruce was the largest in value, $1,272,653; then hemlock, $237,814; pine, $144,907; oak, $15,207; bark for tanning, $12,803; firewood, $1,094,257; wood for pulp, $48,320, and other miscellaneous products of considerable value make up the total above given.

The spruce is thus seen to be our most valued wood, the hemlock and pine coming next in order of importance, so far as production and export are concerned. The spruce, found abundantly in the western counties especially, is largely used for building purposes, making excellent floor and joisting timber, and also furnishes spars for sailing vessels as it is both light and strong. It is largely used in the frames of ships,

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and when well salted is said to be almost as strong and durable as oak. The spruce is also the favorite wood of pulp makers. Mr. R. H. Campbell, Dominion superintendent of forestry, at a lumbermen's convention held at Yarmouth in May, 1907, said that the most desirable species for forest cultivation in Nova Scotia was the spruce, since it reproduced so easily.

The hemlock is found mixed with other woods. Strong and durable when not exposed to the weather, it is used for much rough work, such as sheathing, roof boards for shingling on, holding nails better than almost any other wood, joists, studding, and stable flooring.

The pine, the king of the forest, in the opinion of the lumberman, whether grandeur, usefulness, or value is the quality to be taken into consideration, is being rapidly exhausted in this province. Its place in the export columns is being taken by spruce. It is not a quick-growth tree. It is said that once gone it is gone forever, for it can not be reproduced in our own or our children's time. In an article on forests and lumbering in Nova Scotia, however, Mr. F. C. Whitman, the president of the Western Lumbermen's Association, describes a visit to a growth of pine and spruce which had come up in thirty years.

"A tract of land between four and five acres in extent was cleared of timber near Annapolis Royal, burnt over and seeded to grain and potatoes thirty-two years ago. The road to the land runs up the side of a hill north and south, and the land cleared lies on a slope to the westward. When clearing the land near the top of the slope a small pine about three-fourths of an inch in diameter was left as it was standing in a little cleared space by itself; to-day this pine is a tall tree 16 inches at the butt, and would give a log 13 feet long, 10 inches at the top. As far as I could see this tree had not seeded any of the nearby land, probably because of the fact that the leeward side is thick spruce woods. Then in the middle of a lot on the western boundary an old growth, heavy-limbed pine, was also left standing, and from this tree, spreading out in a fanlike shape to the eastward, the ground has been thickly seeded with young pine. The seed for the most part carried about 75 paces in a direct line from the old tree, and only to the edge of the road from the east side of the clearing, where a growth of spruce had sprung up, following the line of the road north and south. In a few places the seed had carried across the road. I should judge that the farthest young pine was 200 paces from the old tree and about two acres were thickly covered with young growth. Where a young tree got the light and the sun it was much larger than in a thick growth. I measured a tree 11 inches at the butt and at 12 feet high it would go 8 inches in diameter. In the groves the young pine was very thickly seeded and the trees were from 6 to 9 inches in diameter. A grove of spruce along the road had outgrown the pine, for the reason it got more light, and trees were to be found 14 inches in diameter and running up into logs. All this growth has taken place within thirty years, and on land that was cleared and crops taken off. The pine originated from one old growth tree and the spruce trees also came up from seed. I measured this year's growth on the young pine and found it to be from 1 foot 6 inches to 1 foot 8 inches."

Of the hard wood, birch is the most valuable. In eastern Nova Scotia there has been a heavy drain on the spruce production. Forest fires have done inestimable damage in the past, though the provincial woods' protection laws have lately done much to stay the ravages of this most disastrous enemy of the forests. East of Pictou there is very little spruce, or, in fact, very little soft wood of any value. There are exceptions to this in some of the valleys of Cape Breton.

With hard wood it is different. There is all through eastern Nova Scotia a large quantity of hard wood. In Pictou, Antigonish, and parts of Guysboro a good deal of the heaviest hard wood has been cut and exported to Great Britain in the form of hewn logs, but there is in these three counties and all through the island of Cape Breton an enormous quantity of merchantable hard wood still untouched. There are few parts of the world that offer more favorable sites for furniture factories.

An important development in recent years in connection with the forest products has been the pulp, which has begun to assume large proportions in certain sections of Nova Scotia. A great deal of pulp wood is cut in the western counties and exported to the United States. The first pulp mill was built at Mill Village, in Queens County, in 1881. The wood was then easily obtained from the adjoining lands, but now the company must go up the Medway River for its supplies.

The low prices ruling placed the pulp industry in rather a troublous condition last year. There were shipped to Great Britain from the four mills operating at Mill Village and Milton, in Queens County, and at New Germany, in Lunenburg County, 15,000 wet tons of wood pulp; the company at Weymouth, in Digby County, shipped 5,000 wet tons—in all, an export of 20,000 wet tons. There is a mill in course of erection at Caledonia, Queens County, and another at Gaspereaux, in Kings County.

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A pulp mill operated at Murray, in Victoria County, in the island of Cape Breton, by the North River Lumber Company was destroyed by fire last summer, but will be replaced in the spring.

With this last exception, practically nothing has been done to develop the pulp industry in the eastern part of the Province. There is, on the contrary, an ever-increasing demand for pit props that are used at the various collieries. This demand covers the same class of wood that under other considerations would be used for pulp. The pit-prop industry is growing to be a very important one.

The pulp industry in 1908 will show an increased output. One shipper alone has contracted for 25,000 tons to be delivered from the five mills now operating. The fifth will ship 5,000 tons.

The paper industry has not been developed in Nova Scotia till lately. The St. Croix Paper Company operates at Hartville, in Hants County, and a paper mill is being organized in connection with the pulp companies at Milton, but so far none of the product has been marketed.

The forest lands were all originally vested in the Crown, and there only remain now 1,470,530 acres of ungranted land. In 1899 the policy of the government of Nova Scotia with respect to its crown lands was completely changed, and instead of issuing grants of land, unless for actual settlement, leases for terms of twenty years are issued. This lease is only for the purpose of cutting and removing timber. In 1904 the price of these leases for cutting timber not less than 10 inches in diameter was raised from 40 cents to 80 cents per acre; and in the case of leases of lands to cut and remove timber of a size not less than 5 inches in diameter from 50 cents to $1 per acre.

Nova Scotia, both in its government and people, is more alive to the necessity of forest protection than it was some years ago. No active governmental steps have been taken to reforest the lands owned by the Crown, but lumber companies are more generally pursuing a course which will insure a perpetual supply of timber. The Lumbermen's Association, of western Nova Scotia, is a strong and influential organization. The future gives promise of more attention being paid to forest values. Conservative cutting, protection from fire, and natural reproduction will combine to conserve the forest wealth of Nova Scotia for all time to come.

The government in 1904 enacted a most advanced and progressive measure for the protection of the woods against fire. The Nova Scotia system of fire rangers has been called by the superintendent of forestry, a high authority, one of the best in the Dominion. The act has been adopted by ten counties and three muncipalities. This system, with its rangers and subrangers, constitutes the most effective means for dealing with all cases of forest fires, and there are numerous recorded instances where their prompt intervention prevented fires which might have developed into dangerous proportions. Some municipalities have not yet adopted its provisions, but the object lessons in other counties will of itself induce all other municipalities having timber limits to take advantage of the act at an early date.

TIMBER RESOURCES OF NEW BRUNSWICK.

A paper entitled, "New Brunswick's forests," was read by Col. T. G. Loggie, crown lands department, Fredericton, New Brunswick, before the Canadian Forestry Association, at Quebec, March 9, 1905, and published on pages 44 to 47 of the sixth annual report of the association (1905). A part is given below:

From its earliest history the products of the forests of New Brunswick have held a first place in its trade exports. Although a large section of the province is admirably suited for agriculture, particularly the magnificent intervales of the river St. John, stretching almost from its mouth upward to the limits of the province, a distance of 300 miles; of the Miramichi, Kennebecasis, and other valleys; the broad salt marshes of the upper Bay of Fundy; still lumber has remained king.

New Brunswick contains an area of 17¾ millions of acres. Of this acreage 10½ millions are granted lands and 7¼ crown lands, and the province is everywhere drained by large rivers, with innumerable branches, almost locking each other at their source.

It will thus be seen that lumbering can be carried on advantageously, as one has yet to find a section of the Province where logs can not be cut and driven down these waterways to market. Of these rivers the St. John is the largest and drains nearly one-half of the Province. Next in importance is the Miramichi, its watershed embracing about 5,000 square miles.

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The settled portions of the Province are principally along the river valleys and coast line, the interior forming one vast timber preserve and embracing a territory 80 miles wide and 100 miles long, without a habitation of any kind save the lumberman's and trapper's shanty, and no sound except the ring of the woodman's ax or the call of the hunter. Here is a domain fairly free from the ravages of fire, and timbered with all kinds of valuable lumber. The greater part of this territory is unfit for cultivation, lying on the granite and bowlder formation, although the northern sections in its approach to the Restigouche River runs into the Upper Silurian belt, and consequently has good deep soils. Everywhere over the belt both black and white spruce abounds, some pine, and vast quantities of the hard woods that have scarcely been touched, also large quantities of the finest and largest cedar in eastern Canada.

* * * * * * *

The total area remaining in the possession of the Crown, as stated at the outset, is in the vicinity of 7,250,000 acres, of which quantity 6,250,000 are under timber license, the remaining 1,000,000 acres being to a large extent burnt and barren lands. Licenses from the Crown are issued annually, but there is an understanding they will run to August 1, 1918. The stumpage on spruce, pine, fir, and cedar is $1.25 per 1,000 superficial feet, and the yearly rental is $8 per square mile.

The average annual cut for the last five years has been 120,000,000 superficial feet, classified as follows:

	Superficial feet.
Spruce and pine	95,000,000
Cedar	15,000,000
Hard wood	4,000,000
Hemlock	3,000,000
Fir	3,000,000
Total	120,000,000

* * * * * * *

PRIVATE OWNERSHIP OF LANDS.

Of the lands that have passed from the Crown, I will only deal with three of the largest tracts. The grant to the New Brunswick Railway for building a narrow-gauge railway from Fredericton to Edmunston, a distance of 167 miles, was 1,647,772 acres, and embraces lands principally on waters tributary to the River St. John and including parts of the counties of York, Carleton, Victoria, and Madawaska.

Mr. W. T. Whitehead, the company's agent, has this year given me the following estimate of the quantity of lumber on these lands:

	Superficial feet.
Spruce	3,014,000,000
Fir	3,014,000,000
Hard wood	4,743,000,000
Cedar	406,000,000
Total	11,177,000,000

Of this large tract the company has sold only 600 acres. Fully one-third is situate on the Upper Silurian formation, representing some of the best settling lands in the province; but the policy of the company is not to sell any for farming purposes, and the progress of that section of the province is consequently retarded.

It has been proposed that the government should buy back the settling portion of these lands, which, if accomplished at a reasonable price, would, in the opinion of those who have studied the question, be productive of great results.

The next largest ownership is that of the Alexander Gibson Company, who hold the fee simple on upward of 225,000 acres located principally on the Nashwaak River, and absolutely controlling the lumber lands on that river. Mr. Gibson purchased the greater part of these lands in the early sixties and has been cutting them ever since without a break. The growth is principally black spruce, which replenishes itself about every ten years in cutting down to merchantable logs.

In a conversation I had with Mr. Gibson some ten years ago he estimated these lands as worth to him $20 per acre. It must be understood, however, that any such high valuation can only be explained by the peculiar advantages possessed by the owner.

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Over 1,000,000,000 of spruce have been cut on this property since Mr. Gibson's purchase, and, judging from reports, the lands to-day are fairly abundant in timber.

It may be mentioned here that as much as 20,000 superficial feet per acre of spruce has been cut on choice bits of this property. In this connection, I may mention the cut on a block of 3,000 acres I purchased on the Keswick River in the year 1887, a tract not particularly well timbered at the time, but fast growing black spruce. In that year I let the stumpage on 1,000,000 feet. Again in 1892 it produced 2,000,000 feet, and again in 1900 the operator paid me stumpage on 2,000,000 more. In 1897 I am looking for a further crop of 2,000,000. So much for the old Scotch proverb:

"Be aye stickin' i na tree; it'll be growin' when ye're sleepin'."

The lands of Mr. Gibson have not been subject to much forest fire, partially owing to the distance from railway lines, but more particularly to the vigilance which the owner displays in dry times.

Another large tract is that located on the upper waters of the southwest Miramichi, embracing an area of 160,000 acres, which, I understand, has lately passed into the hands of an American syndicate at a price of upward of $600,000. The timber growth is much the same as on Mr. Gibson's property.

Extract from a paper entitled "Farm forestry in the eastern provinces," by Rev. A. E. Burke, Alberton, Prince Edward Island, read before the Canadian Forestry Association, in Ottawa, January 11, 1906

New Brunswick is a well-wooded province of 17,000,000 acres, only a very small portion of which is given over to agriculture. The growing of timber for the money that is in it has always been a commercial pursuit of the people, although no systematic forestry has ever been inaugurated. A great portion of the lands still remain under the Crown. Some 10,000,000 of acres are granted lands, it is true, but even those are practically half under forests of some kind. Certainly less than 5,000,000 of acres are devoted to crop production, and, so far as we know, no organized system of farm forestry has yet been demanded or evolved. Of the 7½ millions under the Crown, possibly 6½ are under timber license and the remainder burnt or barren areas. (P. 81 of the seventh annual report of the Canadian Forestry Association, 1906.)

Anonymous article in the Toronto Globe of February 29, 1908, entitled "New Brunswick:"

New Brunswick is the largest of the three maritime provinces of the Dominion of Canada, and covers an area of 27,500 square miles. Portions of it are as yet but sparsely populated, but the present progressive government of the province have embarked upon a vigorous campaign to make known the manifold attractions of New Brunswick, both to the settler and the capitalist, which will undoubtedly result in a great influx of settlers and the investment of much money in the development of New Brunswick's rich resources. A gentleman of energy and wide experience has been appointed to act as commissioner of colonization and industries, who will advertise the province in quarters where comparatively little is known about it. He will also conduct a bureau of information, have on hand lists of vacant farms, full information with regard to settlement, roads, etc., and also assist in the locating of settlers on the vacant lands. Such an admirable policy can not fail to be productive of excellent results, and an era of greatly increased prosperity is assured for New Brunswick.

Apart from the excellent farming lands of New Brunswick, the resources of that province may be divided into three classes, namely, forests, fisheries, and minerals. It is with the first of these that we have chiefly to do in this instance.

The magnificent forests of New Brunswick constitute the greatest resource of which the province is possessed, and one whose value is steadily growing from year to year. It only remains for the people to realize the importance of taking proper measures to safeguard this great heritage and to cooperate with their government in guarding their forests against wasteful and indiscriminate cutting.

The history of the lumber industry in New Brunswick is one that goes back to the earliest days of the colony. At that time nearly the whole of the Province was covered with magnificent forests, including large tracts of giant pine trees. More than two hundred years ago many of the latter were hewn down and converted into masts for the equipment of the French navy. When the flag of England replaced that of France on this portion of the continent a still greater demand was made on the pine forests of New Brunswick for the same purpose, and many ships that achieved renown in the great sea fights of Napoleonic times were fitted with masts and spars of New Brunswick pine. After the close of that war the export trade in pine wood, most of which went to Great Britain, continued to grow rapidly in volume. It reached its zenith in the first quarter of the nineteenth century. In 1825, the year of the great Mira-

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michi fire, exports of pine timber from New Brunswick reached a total of 416,105 tons. After that the export trade in pine gradually declined, its place being taken by spruce and other woods. In 1906 the total export of lumber from New Brunswick amounted to 421,080,449 superficial feet. The white pine has now practically disappeared, while the spruce, which was little valued in the early days of the colony, has become its leading export. If New Brunswick's resources in spruce are carefully husbanded there is no reason why they should not be a perpetual source of wealth to the people and of revenue to the government.

The extent of the timber lands of New Brunswick at the present time is about 10,000 square miles. The numerous fires that have devastated the forests in years gone by and the wasteful methods of lumbering that resulted in the practical extinction of the white pine have shown the necessity of adequately safeguarding the great asset that the Province possesses in these forests. The present government has shown itself fully alive to the situation. In 1906 an act was passed, entitled "The public-domain act," which will make it possible to pursue a more enlightened policy with regard to the protection and utilization of the forests than has obtained in the past. It is intended to have a thorough survey made with the view of ascertaining what tracts are suitable for agricultural purposes and to limit settlement to those areas. It is also intended to safeguard the valuable water powers, and in other directions, such as fire protection, etc., much will be done that will be of inestimable value to the Province.

The area of New Brunswick is about 17,500,000 acres. Of this acreage 9,000,000 are granted lands and about 8,500,000 are crown lands. The province is well drained by splendid rivers, with innumerable tributaries that spread like a network over the entire area of New Brunswick. The chief of these are the St. John River, which drains almost one-half of the province, and the Miramichi, whose watershed embraces an area of about 5,000 square miles. In fact there is no district of the province where logs can not be cut and driven down these waterways to their destination. It should be added that many splendid waterfalls are to be found on these rivers, which are capable of being turned to advantage in connection with such industries as pulp and paper mills, and some are now being so utilized. One of the most remarkable of these cataracts is the Grand Falls on the St. John River, which have a fall of 75 feet. There is without doubt a bright future in store for New Brunswick in connection with the pulp and paper industries. The Government is fully sensible of the importance of these industries and of fostering them by every reasonable means.

The settled portions of New Brunswick are for the most part on the coast and in the valleys of the rivers. The interior is covered with forest growth comprising a territory, roughly speaking, about 80 miles wide and 100 miles long. This vast forest has suffered little in the past from the ravages of fire and is stocked with almost every kind of valuable timber. Here abound both black and white spruce, some pine, great tracts of hard woods, and magnificent growths of cedar.

As already stated, the area of crown lands is about 8,500,000 acres, of which about 6,500,000 are under timber license. The licenses are issued annually, but it is understood that they will run to 1918. The stumpage on spruce, pine, fir, and cedar is $1.25 per thousand superficial feet, and the yearly rental is $8 per square mile. The average annual cut for the five years ending 1906 was 120,000,000 square feet, classified as follows:

	Superficial feet.
Spruce and pine	95,000,000
Cedar	14,000,000
Hardwood	4,000,000
Hemlock	3,000,000
Fir	3,000,000
Total	120,000,000

The government imposes certain restrictions as to the cutting of undersized timber, and no tree is supposed to be cut down that will not make a log 18 feet long and 10 inches at the small end.

While lumbering in its various phases is the prinicpal industry of New Brunswick, another great resource that the Province possesses is its fisheries. There has been a steady growth from year to year in this direction, the value of the fish caught in the Province having risen from $1,131,433 in 1870 to $4,119,899 in 1899. In 1906 there were engaged in the fisheries a fleet of 276 vessels, aggregating 3,640 tons and manned by 1,131 men. The number of small craft similarly employed was 6,743, manned by 11,843 men. These figures give a total of 12,974 persons employed in the fisheries of New Brunswick. In addition to these, there are many thousands employed in the lobster canneries. Without fully particularizing the various kinds of fish that

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are caught, it may be said that those that head the list so far as the total value of the catch is concerned are herring, lobster, sardines, smelt, codfish, salmon, and haddock. Shad, too, are caught in great abundance, and the shad fisheries of New Brunswick are perhaps the most valuable in existence.

While New Brunswick has not yet reached that stage of development when it can be regarded as a great mining country, its resources in minerals are far from despicable, and there is every likelihood of its attaining respectable rank as a producer in particular of coal, oil, and copper. The present coal mines are at Newcastle, but the mining operations have not yet reached a large scale.

The coal region embraces portions of the counties of Gloucester, Northumberland, Westmoreland, Albert, Kent, Queens, Kings, Sunbury, and York. The Grand Lake coal field in Queen's County is a very extensive one and is estimated to contain 150,000,000 tons of coal. While deposits of iron are plentiful, the only one that has so far been worked is that near Woodstock, in Carleton County, where iron has been manufactured for several years. Copper ore abounds in New Brunswick, and the deposits at Dorchester are being operated on an extensive scale. The valuable oil deposits promise to be a source of great wealth to the Province. At the present time 10,000 square miles are under lease to the New Brunswick Petroleum Company, which is to be taken over by an English syndicate, who purpose spending about $1,000,000 in developing the oil deposits. Valuable shale deposits are also under lease to English capitalists.

In conclusion it should be said that New Brunswick is the sportsman's paradise. Nowhere in the world are there greater opportunities for the rod and the gun. Moose, deer, and caribou, as well as bears and other fur-bearing animals, inhabit the woods in great number. The government has devised excellent regulations to prevent the useless destruction of the big game, and the latter are yearly increasing in number. The rivers and lakes abound with fish, and there is hardly a river in the Province in which trout are not to be found. All guides are licensed by the government.

Article in the Toronto Globe of February 29, 1908, entitled "The Forests of New Brunswick," by Prof. W. W. Andrews, dean of faculty of applied science, Mount Allison University, Sackville, New Brunswick:

The charm of the tree lies over the greater part of New Brunswick. The chief settlements are to be found along the rivers and the seacoast, so that, though fire and destructive methods of lumbering have played havoc with the giant forests the older men remember, yet many large areas stand in their native wildness. There can be found in perfection what in all ages men have felt of "the glory, the gloom, and the gladness" of the stately forest with many years upon its head.

The irregular square of the Province is cut by a diagonal of granitic rock running in a northeasterly direction from the river St. Croix to the Bay of Chaleur. This diagonal divides the Province into two triangles, of which the larger one, to the southeast, consists of carboniferous rocks, forming a low-lying country, well wooded, where forest fires have played great havoc, and the smaller triangle, lying to the northwest, of ancient Silurian rocks, a heavily wooded and very diversified country—a hunter's paradise. The same climatic conditions which make for the longevity of the inhabitants seem to stimulate the trees to rapid growth. Some of the older lumbermen, whose observations have been made in the moist and warm valleys in the center of the Province, and whose intelligent thinning of the woods has greatly increased the rapidity of growth, say that a spruce seedling will in thirty years yield a log 20 feet long and 14 inches in diameter at the upper end.

Though New Brunswick has a very short coast line as compared with its sister Province of Nova Scotia, yet in spite of its compactness it is admirably adapted for lumbering. Its many rivers and their tributaries form a network of waterways almost covering the whole Province. The St. John and Kennebecasis, famous for their beauty; the smooth-gliding Miramichi; the Restigouche, with many islands in its broad channel; the Salmon, the Nepisiquit, and the international St. Croix form the main channels along which the forest wealth of the Province finds its way to the sea. During the winter in almost all portions of the Province the gangs of lumbermen may be found housed in moss-chinked, log-built lumber camps, alongside of which are built the low-roofed stables for the teams. Almost everywhere the woods are made to resound with the shouts of the teamsters and the chorus of the ax strokes of these hardiest sons of Canada and the swish, the crash, and thunder of the falling trees as each man lays low his dozen trees a day.

In the spring a feature seen on all the rivers is the river driver—the shepherd of the logs—armed, not with crook, but with cant dog and pike pole, who leads his flocks

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downstream till they are folded in the shelter of the boom near the sawmill or the pulp mill. Not without risk to himself, and with great watchfulness, he keeps them to the main channel, for some of his charges, with seeming and persistent cunning, will hide under overhanging bushes or slip into blind channels or creep into land-locked bays. He must separate those which bear his master's brand from all others, for none but these must appear in the home boom. The same picturesqueness and romantic features which are to be found in the lumberman's life all over Canada are to be found here. The sawmills have the familiar look, and when in operation we see the slow procession of the doomed logs moving from the boom up the gangway and hear the song of the circulars, the chug-chug of the gang saws, the long lisp of the band saws, and the minor music of the edgers and the frequent slap of the boards or deals as they are dropped upon lumber piles or loaded upon the lighters. One feature is new to an Ontario man, and that is the brigantines and ocean schooners lying at the wharf or the ocean tramp anchored in the bay waiting to carry the product of the mills across the sea.

The area of New Brunswick is 17,910,498 acres, of which 8,500,000 are crown lands and 6,500,000, or one-third of the Province, are under timber license. The provincial income in stumpage dues amounts to $300,000. The value of the crown lands has doubled in ten years. The British navy for many years held large tracts in the Province as timber reserves until the areas were handed over to the provincial governments. It is recalled with pride that at Trafalgar and the Nile the victorious colors were held aloft by masts of New Brunswick pine. The ancient pine woods have been almost wholly replaced by the ubiquitous spruce, which has been described as "a weed in New Brunswick."

The people of the Province are awakening to the great value of the asset they hold in their timber lands. Little care of them has heretofore been exercised. It became the habit of the early settler, who had to carve an open space for a farm out of the forest, to look upon the trees as his natural enemies. This seems to have become an organized instinct in their descendants, for even where belts of wood would add to the fertility, beauty, and comfort of the farm, the trees are attacked in a spirit of wanton destructiveness. Only a new appreciation of the function of the forest in our national life, and legal enactment, can cure this great evil. Last year a convention was called by the lieutenant-governor, the late Hon. Jabez Snowball, to meet in Fredericton to discuss forestry problems. This gathering, while partly a result of the growing interest in the forests, has given a great impulse to the work of creating a public sentiment in favor of forest conservation. A law had already been passed by the legislature which contained many admirable provisions for the protection of the forests, by regulating the setting out of fires by setlers and campers and the appointment of forest rangers who have power to summon citizens to their help in putting out fires. Wide publicity has been given to the law, and this in itself has had a distinct educative influence upon the public. Much, therefore, may be expected to result from this wider public interest in the whole question.

As the forest lands are the chief source of public revenue in this Province there has been much discussion of proposals looking toward an increase of revenue from them. A tax of 10 cents per acre on the crown lands would yield over $60,000 to swell the receipts of the provincial government. When it is a notorious fact that many lumbermen pay well for the privilege of cutting off private lands, it would seem a slight tax upon those who use in the same way the public domain. If such a fund were used to aid the public school system in the direction of technical education and to establish in connection with the provincial university a school of forestry well equipped enough to command the respect of all Canada, it would be a fine result. Nova Scotia, rich in her expanding revenues from her mines of coal and iron, is establishing a system of technical education, capped by a polytechnic, in which strong courses will be given in civil, electrical, mechanical, and mining engineering. With this college of technology the science courses of all the colleges of Nova Scotia and of Mount Allison University, in New Brunswick, are coordinated, and in their halls the first two years of applied science courses are given. The advanced work of the remaining two years of the four-year course will be given in the provincial institution at Halifax. A school of forestry at Fredericton, similarly organized in relation to the other colleges, could serve all maritime Canada, Quebec, and Newfoundland. This can only be done by concentrating on this line of development, and by the practical cooperation of the lumber kings of the Province. The university, situated not far from the heart of the Province, and surrounded by a lumbering region, and possessing a considerable tract of woodlands of its own, is splendidly placed to serve itself well and the lumbering interests of the Province.

The growth per acre is estimated at 75 or 100 feet per year, or 1 log per acre. Stumpage last year was collected on 136,000,000 feet. At the rate of 1 log per acre

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the annual cut should be 432,000,000, on which the stumpage would be $540,000, a sum in excess of the present receipts by $240,000 a year. It is perfectly plain that if we add to that the increase of 20 per cent in rate of growth due to judicious thinning out of the forest, it becomes incontrovertible that the lumber export and the public revenue are capable of enormous development, without any depletion of the timber lands. The pressing financial needs of the Province will doubtless lead to a solution of the problem through the scientific training of foresters to serve the lumbermen and the more careful scaling by government officials. When the time comes that every lumber camp is practically a school of forestry and the few certainties of the new science are known to all who have to do with the forests, a perpetual public income of ample dimensions will be assured to New Brunswick.

One feature of the situation is not regarded by many as promising well for the growth of the Province in population. In many regions where land is suitable for agriculture the lumber interests do not encourage the settlement, for very obvious reasons. Many sections of the Province will always be more profitably kept in timber. The demarcation of these areas from those upon which settlers should be placed can perhaps only be accomplished by a commission basing its work on a careful survey of the agricultural possibilities of the Province. It is found also that where the lumber camp is within easy reach of the settlement young men prefer the good board and the social element of the lumber camp and the general healthfulness of the work to almost any other labor, and the good wages they receive, instead of being used to develop their farms, are used up in summers of idleness. Lumbering, instead of being a great aid to agriculture, becomes in this way a drag upon it wherever the spirit of enterprise runs low in the community. The cure for this will probably be found in the intellectualizing of the lumber camp and the farm. This process is slowly taking place in some quarters.

The pulp mill has appeared, and by the higher value of its product it makes for the greater prosperity of the Province. To quote the estimates of one authority: If 1,000 cubic feet of deals be cut $7 will have been paid in wages, and the product is worth $15. The same amount made into pulp is worth $31.50, and the amount paid in wages is $12. The capital invested in the sawmill is $5, where in the pulp mill it is $41.

In connection with this a strong agitation is now in progress in favor of a prohibitive export duty on pulp wood, for while a cord of pulp wood may be worth $2.50 to $7, made into low grades of paper it is worth $45, and if into the higher grades $50 to $100. It is therefore estimated that if the present export of pulp wood were manufactured into paper at an average value of $50 a cord $30,000,000 would be added to the national wealth of Canada. Considerations such as these are inducing lumber men, legislators, and local boards of trade to favor the imposition of some such duty. The Maritime Board of Trade at its last session in St. John passed a strong resolution in favor of this export duty. The past few years has witnessed the purchase of large tracts of timber lands by syndicates of citizens of the United States. If a federal export duty can be imposed sufficient to compel the paper mills to move into Canada without seriously disturbing any other established industries, immense benefits will accrue to our business interests.

The great question at present here as elsewhere is the prevention of fire. One famous event in the history of the Province was the Miramichi fire in the year 1825. It destroyed all life over an area of two and a half million acres. Even the fish in the streams were found dead. Its track of devastation can be traced yet. In nine hours it swept over an area 80 miles long by 25 miles wide. Several towns and property, exclusive of timber, to the value of $300,000 were destroyed. One hundred and sixty persons lost their lives. Who can estimate the annual loss to the general interest of the Province from that calamity? Other serious fires have occurred, but happily of much less extent. Many view with anxiety the building of the Grand Trunk Pacific through some of the finest timber areas of the Province. The wholly efficient spark arrester can not come too soon, or the electrification of the railroads running through valuable timber. The people are becoming imbued with the idea that forest fires may be prevented, and the heavy penalties of the new forest laws are helping to develop a public conscience on this matter. A determination in this Province by the sea is growing that both railroads and private parties must be compelled to carefully guard the public interest in timber lands.

Article in the Toronto Globe, of February 29, 1908, entitled "New Brunswick's forestry policy—Lieutenant-Governor Tweedie's Address."

In an address delivered in the fall of 1907 before the Canadian Club of St. John, Hon. L. J. Tweedie, lieutenant-governor of New Brunswick, who for years has taken an active interest in the question, made some striking observations on the subject of

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forestry and forest preservation. He pointed out that in recent years this question had received most earnest attention both in the United States and Canada. He regretted to say, however, that in New Brunswick public attention had not yet been aroused. "Nor has any great interest, outside of those immediately concerned in the manufacture of lumber, been evinced." For many years a large proportion of the lumber lands of the Province lay waste and uncared for. "Lumber operators chose what to them seemed the most suitable timber blocks upon which to carry on their operations. The rest remained unapplied for." Under those circumstances it was not to be expected that the government would undertake to expend large sums in protecting and preserving the forests from which the returns were small. In so comparatively a recent year as 1893, when the general sales of crown lands took place, only 4,161¼ miles were applied for out of over 11,000 square miles offered, the total amount realized being but $72,634.50, or an average of $11.20 per square mile. Some 5,000 square miles being still unapplied for in 1898, the government decided to offer them at auction for the balance of the license term (expiring in 1918). Some 1,169½ square miles were disposed of for a total of $24,360, or an average of $21 per square mile. Many blocks could not be sold, however, at the upset price of $8 per mile.

"To-day," he went on, "these same lands are worth from $200 to $500 per square mile, and very recently licensees have sold them at enormous profits." Then he added a few words bearing out what was said many times in the interviews and letters published during the Globe's pulp wood inquiry, viz: "Our neighbors from the adjoining Republic have their eyes turned toward the lands of New Brunswick, and recently have made large purchases not only of lands held in fee, but of lands held under license from the Crown."

As frequently stated in the Globe, this activity of the Americans is not confined to New Brunswick, but is especially noticeable in Quebec, and is now becoming a feature in Ontario.

Proceeding, Hon. Mr. Tweedie declared that, notwithstanding "all the carelessness, negligence, and waste and destruction, that have taken place in the past, the forest lands of New Brunswick are to-day of immense value, and it is therefore of the utmost importance that all reasonable measures should be taken to protect and preserve them." Any measures adopted would, however, prove abortive and ineffective without the assistance and cooperation of the public, the representatives of the people, and those engaged in the industry. The question was not and should not be a political one; all parties should work together. In 1906, as premier of the Province, he had the honor of introducing the "public domain act," and he thought that if the provisions of that measure were carried out New Brunswick would not be behind any other Province in an effective forestry policy. Among other things, it authorized the steps for "a complete survey of the crown timber lands of the Province, to divide the same into districts, and, wherever necessary, to run base lines and such other lines as may be necessary to distinguish such districts." He emphasized the importance of this, contending that when the surveys were made competent men should be employed to classify the lands and afterwards make proper maps of the topography of the country surveyed, "which should show every block of land, the quality and estimated quantity of lumber on it, and the facilities for driving such lumber and getting it to market." There were large areas of land on which timber would never arrive at a growth that would meet the regulations forbidding cutting that would not make a log 18 feet in length and 10 inches on the top. The quantity of these to first-class lands was not, but should be, known, in order that the pulp-wood question, which was of importance in the Province now on account of the establishment in recent years of sulphite fiber mills, might be intelligently dealt with. Except, however, in the areas where the growth was of the stubby nature mentioned, he held that, under no pretext whatever, should cutting be allowed below the present regulations. While many of those engaged or interested in lumbering might disagree with this, the results, if the operator were allowed to cut indiscriminately, would be that "in a very few years there would be nothing left but a waste, howling wilderness of no value whatever. The country would be completely demoralized and ruined not only from a lumbering standpoint, but also from an industrial standpoint."

At this stage he considered for a time the agitation for prohibition of the export of pulp wood to the United States pulp and paper mills. If it could be made clear that all the wood exported from New Brunswick could be profitably manufactured in the province, he agreed that it would be advisable to prevent its shipment to the United States. "But that is not clear," he said, "and I can see a great many difficulties in the way." His honor proceeded to a discussion of these, his main point being that Ontario and Quebec possessed great and numerous water powers and other facilities and requirements necessary for successfully and economically manufacturing all kinds

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of pulp and paper. In these they had the advantage over New Brunswick. Mechanical pulp mills could not be run at a profit with steam; water power was necessary for economical running. There were many districts in New Brunswick where pulp wood could be supplied, but where, because of the drawbacks indicated, pulp and paper mills could not be erected. Probibition of the export of pulp wood would mean that in those localities pulp wood would for many years be unmarketable. Until the last three or four years the poplar wood of the province was considered of little or no commercial value. Now a considerable quantity was being shipped every year to mills in the United States manufacturing pulp by the soda process. So far as he was aware, there was no market for this wood in the province, and many farmers would be prevented from carrying on a productive business in it. However, he did not desire to be understood as having any hard and fast views in regard to the matter of the export of pulp wood, his desire being rather to bring attention to it in such a way as to induce some discussion upon it in the future.

ESTIMATE OF TIMBER CONDITIONS IN PROVINCE OF QUEBEC.

THE UNION BAG AND PAPER COMPANY,
New York, December 7, 1908.

Congressman JAMES R. MANN,
House of Representatives, Washington, D. C.

DEAR MR. MANN: The report I have as to the average age of pulp wood has astonished me so that I am having it all done over on another plan.

Of course, we have to work with short blocks, and now I have moved further along and am trying to get butt logs in the boom counted.

Blocks 18 to 24 inches in diameter would indicate ages of from 142 to 203 years, which seems almost incredible to me.

I write you this so that you will know I have not forgotten these figures and data I am to give you, but I want them as near right as possible, even if it does take a little time.

I am sending to Canada to see if I can not get the rings on a lot of stumps counted, which of course is more authentic and exact than measuring and counting logs after they get to the mill.

Yours, very truly.

EDGAR G. BARRATT, *President.*

THE UNION BAG AND PAPER COMPANY,
New York, January 7, 1909.

Hon. JAMES R. MANN,
Chairman of the Select Committee
on Pulp and Paper Investigation,
House of Representatives, Washington, D. C.

DEAR SIR: In answer to your recent request, and trusting that we may be able to contribute some information of value to your committee, we beg to submit the following:

Quebec timber lands.—But very little of the forest area of the Province of Quebec has been mapped or scientifically explored, and exact knowledge as to the quantity or value of the timber in much of this territory is impossible to obtain. Cruisers have traveled lands of individual owners, and by compiling this rather crude data, spreading the figures obtained from examination of given areas to the contiguous territory where conditions appear to be similar, and combining the

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results thus obtained we have arrived at the following general conclusions as to the spruce-bearing territory of the Province:

The territory with which we are personally familiar, and on considerable of which we have exact data, lies north of the St. Lawrence, between the River du Lievre and the Saguenay and Lake St. John—a forest area of approximately 35,000 square miles. Of this district, that lying in the south and western portion, covering an area of about 5,000 square miles, including lakes, swamps, barrens, burned area, etc., probably contains about 10,000,000 cords of pulp wood. An area comprising approximately 13,000 square miles, nearly all of which is tributary to the St. Maurice River and its branches, would probably not produce over 20,000,000 cords of spruce pulp wood.

To both of these figures 10 per cent may be added for balsam. There is practically no hemlock, but considerable quantities of so-called cypress, corresponding to our jack pine, but these trees are small in diameter, grow in thick groves, make a reasonable quality of pulp when treated chemically, but are useless for ground wood as far as is known at present.

We believe these average figures can be applied to this entire area of 35,000 square miles, which would give a production of spruce pulp wood of 60,000,000 cords.

It is our belief that the district west of a line drawn north of Ottawa can not be considered as a proper spruce-bearing territory, although certain districts have a reasonable amount of spruce still remaining in spite of the extensive lumber operations which have been conducted in this territory for fifty years past.

Following the Ottawa and the St. Lawrence from Ottawa to Quebec, it is our opinion that the growth of spruce gradually decreases and becomes of less and less value, beginning, say, 180 miles back from the river, and that from this line northwest the growth is not economically available, being small, scrubby, and scattered. To some distance east of the Saguenay River and extending around the shores of Lake St. John and up the rivers tributary thereto, we believe there is a good stand of spruce, but from that territory eastward down to the Gulf of St. Lawrence the well wooded territory extends back from the river in a constantly narrowing strip. It is generally believed that a narrow spruce timber belt extends along the ocean shore of Labrador, and a report which we have received and believe to be authentic states that along the coast of Labrador as far north as Hamilton Inlet the timber extends inland only a short distance, in many places only two to four miles, until barren country is reached.

The territory south of the St. Lawrence, from Quebec south and west, has been a better spruce country than that of the north shore, but now most of this territory is gridironed with railroads, is thickly settled and farmed, so that it can hardly be considered as a factor for the future.

Probably five years ago over two-thirds of the pulp wood exported came from the south shore, but the proportions have changed, and less than one-third of the Canadian product now comes from these points, and the quantity is diminishing year by year.

We have no definite knowledge of the territory from Quebec east to the Matapedia River, but believe this to be a good pulp-wood territory of mixed spruce and balsam. From the Matapedia east to the Gaspé Peninsula the territory is good spruce and balsam bearing,

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better for pulp wood than lumber, and will average probably higher per acre than the north shore country.

The area of Quebec is about 350,000 square miles. We believe that considerably less than one-half of this territory can be considered forest area of commercial value.

In considering this whole territory we wish to make it clearly understood that there are tracts of several hundred square miles where fire has been kept out of the territory, where the pulp wood will average even 8 or 10 cords to the acre over the entire area, but that contiguous territories which have been fire swept and which may be subject to other conditions not conducive to growth will occur, where practically the same number of miles may produce almost no pulp wood whatever, and where conditions are such that the territory can not be profitably or commercially operated, and in making such a general estimate as given above, we have tried to make allowances as we have found them to exist from experience.

Pulp wood which can be brought down the rivers so as to reach the St. Lawrence at any point west of Quebec, can be transported by barges to northern New York State points, and by transshipment reach most of the mills in this district, and at the same time the rates by rail both from north shore and south shore points to points in northern New York, New Hampshire, Vermont and eastern Maine, are minimum rates, thus creating a territory which is naturally tributary to the locations of mills as described above, and this area is practically included in the 18,000 square miles specifically described, to which of course must be added the more or less productive region on the south shore.

The district east of Quebec, where the river widens out, has practically no railroad on the north shore; the transportation must therefore be entirely by water. Storms make it dangerous for barges to go below Quebec, so that any pulp wood from this district must come by seagoing barge or steamer, and these can be economically taken up through the St. Lawrence to Lake Ontario points, thus supplying with reasonable economy paper mills in the western district of New York, and the pulp wood can even be transported through the lakes clear to Wisconsin, as has been done in the past.

Most of the south shore east of Quebec is tributary by rail to Maine mills, and from the Gaspé Peninsula pulp wood may be shipped by water economically to delivery points on the Maine seacoast.

At the mouths of many of the rivers available for pulp wood production sand bars extend out into the wide St. Lawrence, so that it is necessary in loading steamers to transport the pulp wood in some cases 2 or 3 miles by barge from the shore to the steamer anchored out in the open, and the dangers are such that it isn't easy to economically and continuously operate for any definite time during the year.

The all-rail freight rate from Three Rivers to Sandy Hill, N. Y., on pulp wood in cars is 8 cents per hundredweight. From Rimouski, which is considerably east of Quebec, the freight rate is 13 cents. This difference of 5 cents amounts to practically $2 per cord of wood transported, which shows clearly the desirability of the territory west of Quebec as a source of supply for New York State mills.

Limits, licenses, crown dues, etc.—Most of the timber land of the Province of Quebec is owned by the government. Some operators own "seignories," or hold their land in fee, but this is only an inconsiderable portion of the whole. From time to time the crown land

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department has sold to the highest bidder licenses to cut timber from given areas or "limits," and by subsequent transfers the rights granted under these licenses have been acquired by the present holders. These licenses are for one year and are renewable.

After the limit holder has once acquired his licenses, his only necessary expense is the annual ground rent of $3 per mile, and a small additional charge for fire rangers, in lieu of all other taxes. In case he sells or transfers his licenses, he pays a transfer charge of $4 per mile.

In case he cuts from the limits he pays, under the existing schedule, the following amounts as "crown dues," the logs cut being scaled by sworn government scalers working in the woods:

For white pine logs over 11 inches in diameter (per thousand feet b. m.)	$1.30
For white pine logs 11 inches and under in diameter (per thousand feet b. m.)	1.10
For small red pine logs (per thousand feet b. m.)	.80
For spruce and balsam (per thousand feet b. m.)	1.08

If, however, the spruce or balsam is manufactured into pulp in the province, the crown dues thereon are reduced to 65 cents per thousand feet, which is equivalent, by the government rule, to 65 cents per cord if exported, and 40 cents per cord if turned into pulp in the province itself.

Six hundred feet B. M. in the log is considered equivalent to one cord of wood.

White spruce can only be cut down to a diameter of 11 inches, 3 feet from the ground; swamp spruce, 7 inches; balsam, 9 inches; and these regulations are strictly enforced. Pine less than 12 inches can not be cut.

In 1907 the Quebec government established a forest reserve, taking in most of the territory from the Saguenay southwesterly to a point some distance north of Montreal, comprising, roughly, an area of, say, 18,000 square miles, and no land in the territory is any longer open to settlers.

Nearly all of the other forest territory may be settled upon by bona fide settlers, which in many cases has resulted in the limit holder being deprived of large sections of his territory.

Cost of limits.—From 1905 to 1907 the average cost of the best limits north and east of Montreal and easily accessible for lumbering, with terminals at the St. Lawrence, or where the freight rate to Hudson River mill points does not exceed 8 cents per hundredweight, was from $750 to $800 per square mile, averaged over the entire tract, whether productive or barren. In 1907–8 limits corresponding to the above description were sold for $1,000 per square mile.

Cut of logs.—On the St. Maurice River the logs driven in 1904 amounted to 128,000,000 feet, in 1907 to 145,000,000 feet, and the increase was made entirely by the additional product required by the four paper-mill companies cutting logs in this district.

If the present rate were continued, the entire territory controlled by these operators would be cut over in less than fifty years. We think, however, that the cut in many places is much greater in proportion than on this particular river. We believe that the annual cut on this river will increase much more rapidly in the immediate future than it has in the past.

Consumption of pulp wood.—This company used in 1903–4, 55,000 cords of pulp wood, which increased in 1907–8 to 85,000 cords, and

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had 1908–9 been a normal year our consumption would have been 103,000 cords.

In estimating cords consumed we calculate that 100 cords of 2-foot rough wood equals 85 cords of 2-foot rossed wood, and that 100 cords of 4-foot peeled wood equal 95 cords of 2-foot rossed wood. All the above figures are based on rossed cords.

Much of our Canadian wood lies in the water for a year, loses much of its bark, and such a large percentage needs so little rossing that we find a shrinkage of about 15 per cent instead of the usual shrinkage of 20 per cent when fresh wood is handled.

We find an actual yield of 2,300 pounds of air-dry wood pulp and 1,250 pounds of sulphite fiber per cord of 24-inch rossed wood.

Weights of wood.—Records of actual shipping weights of 2-foot rossed wood fresh from the floating log cut north of the St. Lawrence in Canada show a cord of 128 cubic feet weighs 4,250 to 4,500 pounds.

If taken from a pile stored during the summer and dried out naturally to a very considerable degree, the same wood weighs from 3,500 to 3,750 pounds per cord.

Hand-peeled wood in 4-foot lengths, that has been corded up after peeling and thoroughly dried out during the summer, weighs from 2,800 to 3,200 pounds per cord. (This latter is actual weight of wood from the south shore of the St. Lawrence.)

Freight on wood.—Most of our Canadian output is loaded on barges at the preparing mills and transported by water to Whitehall, N. Y., thence carried by rail to Sandy Hill (about 22 miles) in train loads. The cost of water transportation has been practically the same for the past five years, but the rail charge for this 22 miles, which has been from 42 to 45 cents per cord, was raised during 1908 to 64½ cents per cord.

Previous to 1904 pulp wood from Three Rivers, St. Gabriel, and corresponding Quebec points was transported by all rail to Sandy Hill, N. Y., at $2.50 to $2.75 per cord, regardless of weight. Since then the rate has been 8 cents per hundredweight, actual weight.

Average freight paid by us per cord of wood from Canadian points to Sandy Hill, N. Y., in 1908 varied from $3 to $3.75 per cord.

Cost of pulp wood.—Canadian wages (woodsmen cutting, skidding, hauling, etc.): 1906–7, $35 to $45 per month and board; 1907–8, $30 to $38 per month and board. River drivers, 1906–7, 1907–8, $1.50–$1.60 per day and board. Boatmen, $2 per day and board. Adirondack wages, 1907–8: Road workers, $30 per month and board; teamsters, $35 per month and board; sawyers, $45 per month and board; log loaders, $40 per month and board; river drivers, $2.25 per day and board.

The cost of 2-foot rough wood delivered at the end of the conveyor from the cutting-up saws in Canada is $5.56.

The cost of Adirondack wood of the same character, delivered at a similar point on the Hudson River at Sandy Hill, N. Y., is $6.26.

In the case of Canada wood, the cost includes logging, driving, government dues and taxes, cutting up, miscellaneous expenses, and administration.

In the case of Adirondack wood, there are no charges for government dues or taxes.

These figures represent the actual cash expenditures in obtaining the pulp wood, and do not include any portion of the original invest-

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ment or interest on same, all of which must be added to arrive at the true cost.

Kinds of wood suitable for paper making.—For ground wood, spruce seems to be the only wood that gives satisfactory results, and it is used almost universally. I am informed that small amounts of so-called poplar (from the Adirondacks and vicinity) are being used and mixed in small proportions with the spruce ground wood. The present difficulty seems to be that the poplar does not "lie down" but makes the sheet paper bulky and creates much fine dust when run over a high speed press.

For sulphite, spruce, hemlock, and balsam are in general use. Spruce is preferred; 10 to 15 per cent of hemlock or balsam may be included, and if cooked with intelligence, will not sensibly interfere with the quality of the pulp. Hemlock, however, is generally handled by itself, particularly in the West, where it is the only easily accessible cheap material, the limited amount of spruce being generally reserved for grinding.

Balsam usually is scattered with the spruce growth and is ordinarily handled along with spruce.

Jack pine, so-called cypress, and other woods have been satisfactorily treated.

Although a great variety of woods have been turned into sulphite pulp experimentally and with indifferent success, we believe if sufficient incentive existed that yellow pine, tamarack, birch, and almost any other wood could be converted into a satisfactory pulp.

Growth of spruce.—It is our opinion that after a tree attains a diameter of 7 inches on the stump (which appears to indicate an age of about 65 years) it obtains an annual growth of approximately 3 per cent.

This varies materially with the location of the tree, character of the soil, protection from cold, and destructive winds, etc. A tree on the mountain top grows slower than one in the valley or on the south side of a mountain.

We attach hereto Exhibits A to E, inclusive, showing age of trees of given diameter as actually measured, counted, and in most cases checked.

The selling prices of lumber f. o. b. St. Lawrence River mill points for 1908 were as follows:

White pine:	
3-inch, first to fourth qualities, inclusive	$26.50–$28.00
3-inch, B culls	16.50–15.50
3-inch, C culls	12.00–13.50
1-inch, fourth quality	21.75
1¼-inch, fourth quality	21.00
1-inch, B culls	18.50
1-inch, C culls	13.50
1-inch, common	8.75–11.00
Spruce:	
3-inch, fourth quality	14.00–15.00
3-inch, C culls	12.25
2-inch, X culls	13.25–13.50
1-inch, X culls	13.75–14.00
3-inch, third quality	14.00
2-inch, merchantable	16.00
1-inch, first and second qualities	22.00
1-inch, second to fourth qualities, inclusive	16.00
1¼-inch, mill run	18.00
1¼-inch, mill run	17.00
1-inch, merchantable	16.00
1-inch, culls	13.00–14.25

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The average price of all grades of, say, 10,000,000 feet of white pine was $20.75 f. o. b. the mill; and of about 20,000,000 feet of spruce, $16 per thousand f. o. b. the mill.

In conclusion, we wish to state that our remarks as far as they apply to quantity are confined to the Province of Quebec, as our knowledge and our interests do not extend into either Ontario or New Brunswick.

Respectfully submitted.

EDGAR G. BARRATT,
President.

EXHIBIT A.

Ages of spruce as determined by the Union Bag and Paper Company, by counting 100 random pieces of sizes given.

SPRUCE FROM THE ADIRONDACKS, NEW YORK STATE.

Number of pieces counted.	Average diameter of log.	Average age (number of rings).	Average time to grow 1 inch.
	Inches.		*Years.*
4	8	72	10
10	9	81	9
8	10	89	8
6	11	96	7
8	12	103	7
6	13	109	6
10	14	115	6
8	15	120	6
8	16	127	6
8	17	134	7
8	18	142	8
6	19	150	8
2	20	159	9
2	21	169	10
2	22	180	11
2	23	192	12
2	24	203	13
100			

EXHIBIT B.

Ages of spruce as determined by the Union Bag and Paper Company by counting one hundred random pieces of sizes given.

CANADIAN SPRUCE FROM 70 TO 100 MILES NORTH OF THE ST. LAWRENCE RIVER.

Number of pieces counted.	Average diameter of log.	Average age (number of rings).	Average time to grow 1 inch.
	Inches.		*Years.*
7	7	66	11
4	7½	72	.....
4	8	77	10
8	8½	82	.....
10	9	87	8
9	9½	91	.....
7	10	95	8
2	10½	99	.....
6	11	103	7
5	11½	106	.....
6	12	109	7
6	12½	113	.....
4	13	116	6
4	13½	119	.....
5	14	122	6
3	14½	125	.....
4	15	129	7
4	15½	133	.....
3	16	137	7
101			

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EXHIBIT C.

Ages of trees as determined by the Union Bag and Paper Company by count of rings on stumps in Shawinigan and Mattawin limits (St. Maurice, Canada, territory).

No.	Kind of wood.	Diameter of stumps inside of bark.	Number rings on stump.	Location.
		Inches.		
1	Black spruce.....	9½	99	Taken on side of Lake Long on low land.
2	White spruce.....	14½	145	Taken at foot of mountain, Lake Long.
3	.....do.....	11	126	Taken on flank of mountain in balsam territory, Lake Long.
4	.....do.....	12	97	Taken on Mountain Hill, hard-wood territory, Lake Round.
5	.....do.....	13½	135	Taken on Mountain Hill. Hard-wood territory clear; wood scattered; good chance to grow.
6	Black spruce.....	11	165	Taken in mucky territory on Lake Round.
7	White spruce.....	14	136	Taken in hard-wood territory on elevation of mountain, south side Lake Round.
8	.....do.....	14	197	Taken on flank of mountain, hard-wood territory, south side Lake Round.
9	.....do.....	12	100	Taken on foot of rocky cliff on mountain, south side Lake Cariboo.
10	.....do.....	12	120	Taken on top of mountain; territory rocky, midst of hard wood, Lake Round.
11	Black spruce.....	11	197	Taken in low swamp land, south side Lake Round.
12	.....do.....	7	107	Taken in low swamp land, north side Lake Round.
13	.....do.....	12	199	Taken in low swamp land, north side Lake Round.
14	White spruce.....	17	202	Taken in hard-wood territory from Lake Round dependencies.
15	.....do.....	10	88	Taken in hard-wood territory near top of mountain, south side Lake Round.
16	.....do.....	20	163	Taken in top of mountain; rocky territory; West Branch Castor Creek.
17	Black spruce.....	8	109	Taken at foot of mountain in swampy territory, West Branch Castor Creek.
18	Bastard spruce....	10	76	Taken on side of mountain, rocky territory, West Branch Castor Creek.
19	Black spruce.....	9	132	Taken in swampy land, West Branch Castor Creek.
20	White spruce.....	9	101	Taken on Mountain Hill, West Branch Castor Creek.
21	.....do.....	12½	85	Taken on Hillside East Bay Lake Brown.
22	.....do.....	12	121	Taken on side of mountain, hard wood, rocky territory, West Branch Castor East Bay, Lake Brown.
23	Black spruce.....	11	145	Taken at foot of mountain; rocky, hard-wood territory, Lake Brown.

No.	Kind of wood.	Diameter of stumps inside of bark.	Number rings on stump.	Location.
		Inches.		
1	Black spruce.....	8½	65	Taken in swampy land, foot of hill.
2	.....do.....	11½	150	Do.
3	.....do.....	10	146	Do.
4	.....do.....	9	141	Do.
5	.....do.....	10	171	Do.
6	.....do.....	10½	99	Do.
7	.....do.....	11	139	Do.
8	.....do.....	10½	132	Do.
9	.....do.....	10½	141	Do.
10	White spruce.....	17	140	Taken in rocky, mountainous territory.
11	.....do.....	16	153	Do.
12	.....do.....	13	128	Do.
13	.....do.....	12	111	Do.
14	.....do.....	18	182	Do.
15	.....do.....	17½	177	Do.
16	.....do.....	14	134	Do.
17	.....do.....	15½	142	Do.
18	.....do.....	17	148	Do.
19	.....do.....	12	140	Do.
20	Bastard spruce....	12	93	Very low land and swampy.
21	.....do.....	12½	101	Do.
22	.....do.....	10	84	Do.
23	.....do.....	8	75	Do.

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EXHIBIT D.

Ages of spruce as determined by the Union Bag and Paper Company by count of rings and measurements of stumps from which logs have been cut.

CANADIAN SPRUCE STUMPS ALONG THE SHAWINIGAN RIVER, ABOUT 30 TO 40 MILES NORTHWEST OF THREE RIVERS, QUEBEC.

Kind of spruce.	Diameter of stumps inside of bark.	Number rings on stump.	Location.
	Inches.		
White	17	140	Alongside a rocky mountain, beginning on side of mountain and running to top.
Do	16	153	
Do	13	128	
Do	12	111	
Do	18	182	
Do	17½	177	
Do	14	134	
Do	15¼	142	
Do	17	148	
Do	12	140	
Black or swamp	8½	65	Foot of hill.
Do	11½	150	
Do	10	146	
Do	9	141	Alongside swamp.
Do	10	171	
Do	10½	99	
Do	11	139	
Do	10½	132	
Do	10½	141	
Do	12	93	Middle of swamp very low, 1 acre from hillside and mountainous country containing logs of hard wood.
Do	12½	101	
Do	10	84	
Do	8	75	

EXHIBIT E.

Ages of spruce as determined by the Union Bag and Paper Company by count of rings and measurements of stumps from which logs have been cut.

CANADIAN SPRUCE STUMPS FROM DISTRICT FARTHER NORTH AND WEST, BUT TRIBUTARY TO ST. MAURICE RIVER.

Kind of spruce.	Diameter of stumps inside of bark.	Number rings on stump.	Location.
	Inches.		
White	17½	164	Swamps, Lake Croche.
Do	13½	141	
Do	21	182	
Do	13½	206	
Do	13	170	
Do	13	162	
Do	14	189	
Do	10	127	
Do	19½	199	Top of Hill High Mountain, Lake Maribault.
Do	15	174	
Do	17½	177	
Do	15¼	161	
Do	21½	197	
Do	21¾	141	Side of hill.
Do	14	123	Side of hill, Lake Claire.
Do	14	111	
Do	12	96	
Do	13½	115	
Do	13½	111	
Do	12	92	
Do	15	128	
Do	17½	121	
Do	14½	112	
Do	11	96	
Do	17½	121	Side of Hill High Mountain, Lake Maribault.
Do	27¼	220	

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THE UNION BAG AND PAPER COMPANY,
New York, January 11, 1909.

Hon. JAMES R. MANN,
House of Representatives, Washington, D. C.

DEAR MR. MANN: The department of agriculture and mines of Newfoundland published the following with reference to licenses for timber and pulp in that province, and I thought possibly you might be interested in seeing this, if you have not already had it brought to your attention.

Yours, very truly, EDGAR G. BARRATT,
President.

Timber and timber lands.—The right to cut timber is granted upon payment of $2 per square mile, an annual rental of $2 per square mile, and also a royalty of 50 cents per thousand feet, board measure, on all logs cut. Rent, royalty, or other dues not paid on date on which they become due bear interest at 6 per cent per annum until paid. Rents become due and payable on November 30 each year. Lands approved to be surveyed and have boundaries cut within one year. Persons throwing sawdust or refuse of any kind from mills into rivers, etc., are liable to a penalty of $100 for each offense.

Pulp licenses.—License to cut pulp wood may be issued for a term of ninety-nine years, in areas of not more than 150 miles. Rent $5 per square mile for first year; $3 per square mile for subsequent years. Licensee to erect factory within five years.

Holders of timber or pulp licenses may not export trees, logs, or timber in manufactured state.

Holders of timber and pulp licenses may not cut timber on ungranted crown lands.

In the Sixth Annual Report of the Canadian Forestry Association (1905), pages 62 to 86, appears a paper entitled, "Forest Wealth of the Province of Quebec," prepared by J. C. Langelier, of Quebec, and presented to the association at Quebec, March 10, 1905. A considerable portion is as follows:

The census of 1901 shows that the land superficies of the Province of Quebec comprises 218,723,687 acres. At the date of that census 7,421,264 acres were under crops, in pastures, gardens, and orchards, while bushes, rocks, and marshes, or other untimbered spaces occupied 1,560,960 acres, leaving for the forests an area of 209,741,463 acres, or 327,721 square miles. * * * Conifers predominate throughout these forests. Spruce, fir, pine, cedar, and hemlock, enumerating them by order of predominance, form at least 75 per cent of the timber growth.

For the purpose of classifying them according to the prevailing growths, the forests of Quebec may be divided into three very distinct regions:

I. The northern region.
II. The central region.
III. The southern region.

I. The northern region lies north of the St. Lawrence River in the forty-eighth parallel. Forests cover an area of 162,749,788 acres, forming 77.58 per cent of the whole forest area of the Province. This northern region embraces the territories of Abitibi, Mistassini, Ashuanipi, the county of Chicoutimi-Saguenay, and the northwest section of the counties of Champlain, St. Maurice, Maskinonge, Berthier, Joliette, and Montcalm—a superficies of 5,375,000 acres.

Black spruce (*Picea nigra*) is the prevailing and characteristic growth of that region. It represents about 60 per cent of the conifers of commercial value. On the average, taking into consideration the burned spaces, the windfalls, and the sections denuded by other causes, black spruce would certainly yield 2½ cords of pulp wood to

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the acre, equivalent to 1,500 feet board measure. At this rate, which is rather below than above the mark, the forests of the northern region could supply 406,874,470 cords of pulp wood, or 244,124,682,000 feet board measure of lumber.

Those quantities, of course, include only the trees measuring 7 inches in diameter on the stump, as the rules of the Department of Crown Lands do not allow the cutting of trees of a less diameter.

It takes less than 30 trees of 6 inches in diameter and 16 feet in length of utilizable timber to form a cord of 128 cubic feet. Mostly everywhere those black spruce forests are very thick; in the most favorable places, the trees grow tall, close to one another, so much so, in fact, that five hundred, six hundred, seven hundred trees are often found in one acre of ground, which represents from 10 to 20 cords of pulp wood to the acre.

It may be added that throughout this region, where the land is higher and the soil deeper, there are many black spruce trees measuring 10 to 12 inches across the stump, which materially increases the yield per acre.

As regards the number of trees, fir (*Abies balsamifera*), is nearly as abundant as black spruce, but the trees are not as tall and their yield in utilizable wood probably does not exceed 25 per cent of that of black spruce. For the whole of the northern region this proportion represents 101,718,617 cords, equivalent to 61,031,170,000 feet b. m.

The white spruce (*Picea alba*) will yield a much larger quantity of lumber, and 75 billion feet is certainly not an exaggerated estimate of the saw logs which can be cut in this region, taking only the trees measuring 11 inches in diameter on the stump. Then there would still be left in the tops utilizable wood to make millions of cords of pulp wood.

In the southern section of the Abitibi territory, or over an area covering 15,000,000 acres, white spruce attains dimensions which make it equal to the finest timber of that kind to be found in the central and southern regions. In the course of his explorations, Mr. Henry O'Sullivan has seen trees measuring 100 feet in length and 20 inches in diameter. "White spruce," says Doctor Bell, "is perhaps the most valuable tree of the district explored. It grows to a great size everywhere along the rivers and lakes, and although as a rule it may be larger near their banks, where it often girths upward of 6 feet, a considerable portion of the trees inland also attain a good size." The timber is sound; as a rule the trunks run to a great height without branches, and in every respect this white spruce ranks amongst the very best timber for the manufacture of first-class saw logs. In this section of the Abitibi territory, there is enough of that fine white spruce to make about 30 billion feet of saw logs of superior quality.

Banksian pine (*Pinus banksiana*) is another kind of timber which grows in abundance throughout the northern region. It is chiefly used for making railway ties. Calculating at the low rate of only two ties per acre, on the average, there is enough of that kind of timber to make upward of 320,000,000 ties, or sufficient to make ties for 150,000 miles of railway.

Botanists describe Banksian pine as a stunted, short, and branchy tree. This description certainly applies not to the Banksian pine of the Lake St. John and Saguenay district, where these trees grow to a considerable height and attain a diameter which renders them fit for the manufacture of saw logs. In a shanty on the River au Rat, in 1898, a jobber cut a tree of this kind and gave 91 feet in length of utilisable timber, viz, five saw logs and two ties. That tree measured 15 inches across the stump and over 7 inches at the top. In the burnt grounds and windfalls in the townships of Albanel and Pelletier, also in those of Dolbeau and Taillon, one can count by scores of thousands Banksian pine trees measuring from 40 to 50 feet in length and 7 to 8 inches in diameter at the small end. The wharf at Tikouape, or St. Methode, is mostly built of Banksian pine, 15 to 20 feet long and 8 to 12 inches square. At the Escoumains mills they sawed for many years Banksian pine logs, turning out good boards which were exported to the United States. Logs of this timber are still sawed by the mills of Lake St. John. Banksian pine ties are from year to year coming to the front and looked after to such a point that they can be transported by railway from Roberval to Quebec, a distance of 190 miles, and sold at prices leaving a good margin of profit. When there will be no more cedar to supply the enormous qauantities of ties required yearly by railways, one of its most valuable substitutes will unqeustionably be found in that Banksian pine, which the northern region is in a position to supply for a very long period.

The fine pineries of the Lake St. John country have been depleted by the Chicoutimi mills, but in other parts of the northern region there yet remains a good deal of this timber. The census of 1901 shows that during that year there were cut in the county of Chicoutimi and Saguenay, 54,182 cubic feet of square pine and 1,217,000 feet b. m. of saw logs of the same timber.

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But it is in the Abitibi territory, from the height of land northward to a distance of about 50 miles that pine is found more abundantly. This area embraces about 6,500,000 acres which, at the minimum rate of 50 feet b. m. to the acre, would yield 325,000,000 feet. This pine is scattered over all the higher lands and hills and could be cut profitably only in connection and simultaneously with spruce; but nevertheless it is there, and in the high and rocky grounds surrounding many parts of the lakes it could supply material for pretty extensive operations.

Cedar (*Thuya occidentalis*) is another kind of timber which grows more or less abundantly in the southern section of the northern region. As is the case for pine, it is in the Abitibi territory that it grows more profusely. The best is found around the lakes and along the river banks. The southwest section of the Abitibi territory alone could supply sufficient of that timber to cut at least 20,000,000 of ties, a couple of million cubic feet of square timber, 8 to 12 inches square, large quantities of piles, telegraph and telephone poles, pickets, and fence rails.

Of deciduous trees, white birch (*Betula papyrifera*) is by far the most abundant all over the northern region. It is seen everywhere and in many places it occupies the ground almost exclusively. Till now this birch has been used only for fuel and for making spools and some turnery articles, but the time is, perhaps, not far distant when it will be used for furniture and also for cooperage, to make barrels, and kindred articles. In the virgin forests, where white birch is a primitive growth, many trees are seen girthing 90 inches and more (see Report of the Commissioner of Crown Lands for 1898, p. 92, French version), particularly in the lower part of the rivers Alex and Peribonka, where immense quantities of those large trees grow on the mountain sides and on the higher lands. That big birch also grows in many places along the north shore of the Saguenay River. Below this river the forests of Cape St. Nicholas, on the St. Lawrence, are the best situated for the cutting of white birch to get lumber for furniture. The harbor of St. Nicholas affords all the desirable accommodations for crafts of the largest tonnage, and the forest of large birch which surrounds it could supply in comparatively exhaustless quantities big logs of the best description. That fine large birch is also found in the southern section of the Abitibi territory. Along the Bell, or upper part of the Nottaway River, there is enough of the fine big birch to cut millions of saw logs. When this territory is made accessible by the construction of railways, this timber will in all probability afford material for large operations.

Poplar (*Populus balsamifera*) and aspen (*Populus tremuloides*) constitute another growth which is also very abundent throughout the forests of the northern region. There are remarkable groves of large aspen between the rivers au Rat and Mistassibi in the county of Lake St. John. Many of these trees attain a diameter of 24 inches, but the general average is between 15 and 18 inches. This timber is sound, remarkably free from black veins and knots, and would yield lumber of the best quality. However, the finest timber of this kind grows in the Abitibi territory, where it attains a diameter of 30 inches and a length of 50 and 60 feet without branches or knots. In the forests of that district, there is enough of this big timber to cut about 10,000,000,000 feet b. m., which might be used for making furniture and packing cases. It might also be used to great advantage in the manufacture of soda pulp. There is no other place where this industry could get its raw material as easily and so cheap, were these forests made accessible by the construction of a railway running along the Bell River, as far north as Lake Mattagami, a distance of about 150 miles from the height of land. Taking only a strip of 5 miles on each side of the river, it would be an easy job to cut from twenty-five to thirty millions of cords of that fine big poplar.

Tamarack, or larch (*Larix Americana*) is perhaps more abundant than poplar. The oldest trees have been destroyed by the grub of the larch sawfly (*Nematus Ericksonii*) which has spread devastation all over the northern region. Still the dried trees, which are not attacked by rot, could probably be used for several purposes, namely, to make railway ties. In the Abitibi district there are enough of those dried trees to make millions of ties. At all events the young trees, a great portion of which were spared by the sinister insect, continue growing and ere many years will supply a large contingency of the forest industry.

The following is a very conservative estimate of the products which the forests of the northern region could supply to the timber business:

Saw logs:		
Pine, white and red	feet b. m..	325,000,000
Banksian pine	do....	10,000,000,000
Spruce	do....	35,000,000,000
Poplar	do....	10,000,000,000
White birch (bouleau)	do....	10,000,000,000
		65,325,000,000

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Pulp wood:		
Black spruce	cords..	406,874,470
White spruce	do....	15,000,000
Fir	do....	101,118,607
Poplar	do....	100,000,000
		622,993,077
Railway ties:		
Banksian pine	pieces..	320,000,000
Cedar	do....	50,000,000
		370,000,000

Besides, and over that, fir would also supply several billion feet of lumber for domestic uses when the country is settled, viz: in the Abitibi territory.

Explorers have ascertained that yellow birch (*Betula excelsa*) grows as far north as fifty miles back of Betsiamites and as far back of Lake St. John, where they have measured trees of 24 inches in diameter. This tree also grows in the southern section of the Abitibi territory, also black ash (*Fraxinus sambucifolia*) and elm (*Ulmus americana*), but those trees are not in a quantity sufficient to make them of commercial value; they will be used for domestic purposes when the country is settled.

II. Central Region.

With regard to the variety and quality of the forest growth, this region is unquestionably the richest of the three. The forest covers an area of 31,649,632 acres, or 302,745 acres more than the whole territory of Nova Scotia and New Brunswick, whose collective superficies is only 31,346,937 acres. This central region is bounded to the south by the river St. Lawrence, and to the north by the forty-eighth parallel, except in the upper part of the counties of Champlain, St. Maurice, Maskinonge, Berthier, Joliette, and Montcalm, where the line bends southward in order to throw into the northern region about 5,376,000 acres of forest in which spruce, particularly black spruce, predominates.

All the kinds of commercial timber growing in the Province of Quebec are found in this central region. The conifers include white pine (*Pinus strobus*), red pine (*Pinus resinosa*), Banksian pine, white spruce, black spruce, balsam fir (*Abies balsamifera*), double balsam fir (*Abies americana*), hemlock (*Tsuga canadensis*), and cedar. In deciduous trees, or hard woods, we have yellow birch (*Betula excelsa*), black birch (*Betula lenta*), white or silver maple (*Acer dasycarpum*), rock or sugar maple (*Acer saccharinum*), mountain maple (*Acer spicatum*), red or soft maple (*Acer rubrum*), white oak (*Quercus albus*), blue or swamp oak (*Quercus prinus*), red oak (*Quercus rubra*), hickory (*Carya amara*), butternut (*Juglans cinerea*), white ash (*Fraxinus americana*), black ash, white elm (*Ulmus americana*), red or slippery elm (*Ulmus fulva*), beech (*Fagus sylvatica*), basswood (*Tilia americana*), hornbeam (*Carpinus americana*), ironwood (*Ostrya virginica*), all the poplars, and white or canoe birch.

White pine ranks first in the forests of this region, especially in the western part. Between the Saguenay and the River St. Maurice this timber is thinly scattered amongst the other trees of the forest, of which it constitutes only a minute proportion. In those 5,004,180 acres of forest, it is probable that twenty-five to thirty million feet of white pine could be cut, of medium quality for the most part. It is more abundant in the western section of the St. Maurice territory, which contains at least 150,000,000 feet. There is undoubtedly as much on the Rouge, Lievre, and Petite-Nation rivers. The richest pineries, and by far the most abundant, are situated in the counties of Wright and Pontiac. They cover an area of 14,596,690 acres. On an average, they can yield 2,000 feet b. m. per acre, which would make a total of 30,000,000,000 feet. In those rich pineries, there can be counted by the score the localities where 10,000 feet and more could be cut upon 1 acre of land.

Red pine is one of the trees characteristic of this central region. This timber grows on the sandy and gravelly hills, which are numerous all over that district; it forms thick groves on the hillsides, where gravelly soil has accumulated, and on the dry sandy points jutting forth into the lakes. There is a sufficient quantity of this timber to supply seven or eight billion feet b. m.

Banksian pine grows nearly everywhere on the poor, rocky, and gravelly lands, chiefly in the dry plains which have been formerly laid waste by fire. It is not as tall nor as good as the same kind of timber growing in the northern region, especially that of the Lake St. John Valley, but nearly everywhere it is of a size large enough to make railway ties. It is larger and of better quality toward the north; 150,000,000 ties could probably be made out of this Banksian pine.

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In the eastern part of the central region white spruce, as far as the number of trees is concerned, is the prevailing growth, particularly in the St. Maurice territory. It is less abundant in the Ottawa territory, but, as a rule, of better quality and larger dimensions. In the central region, and only from the first cut, there is enough of white spruce to manufacture 60,000,000,000 feet of saw logs, taking only the logs measuring 8 inches in diameter and up at the small end. The tops of the same trees could yield upward of 15,000,000 cords of pulp wood.

There is as much, if not more, of black spruce susceptible of being used for pulp wood, and the quantity of this wood which can be cut in all this region is over 20,000,000 cords. The largest trees, which grow in comparatively large numbers in the more favorable situations, could be used to make masts and spars, frame timber, and railway ties.

Fir is very common all over the damp grounds. Taking into consideration the fact that these trees are generally affected with rot, their yield may be estimated at 500,000,000 feet for saw logs and 2,500,000 cords for pulp wood.

Hemlock scarcely grows beyond the forty-seventh parallel of latitude. Hardly a few groves can be seen north of this latitude in the neighborhood of Cape Tourmente. In the western section it grows as far north as the river Keepawa. Between these two extreme points the line marking the northern limit bends southward, describing a curve which passes south of the river Mattawin, in the St. Maurice territory. This tree, which rarely grows in groves, such as were formerly seen in the forests of the southern region, is generally large and tall. This timber could yield a couple of hundred million feet of lumber, or the equivalent in square timber. It could also produce a couple of hundred thousand cords of tanbark. Unfortunately it floats only with difficulty in the cold and heavier waters of the spring, so that it can be utilized by the tradé only at those places where the drive is not long or where the logs can be transported by railway.

Cedar grows throughout the whole of the central region. It is disseminated mostly everywhere in the forest; but on the lake shores and river banks it forms in many places almost impenetrable thickets. It also grows on the marshy depressions and damp flats between the hills and mountains, and it covers almost exclusively areas of swampy lands. In the dense thickets many of these trees are small and stunted, but numberless quantities could make ties, telegraph poles, and even square timber for railroad culverts. The largest trees are most invariably hollow at the stump, but these hollow butts are very profitably used in the manufacture of shingles. Fence rails and pickets are made out of the smaller trees. Calculating on the very conservative estimate of two ties per acre, on an average, there is enough of cedar in the central region to make upward of 60,000,000 railroad ties. Poles for electric wires would certainly reach about 10,000,000, and the hollow butts would supply material to manufacture many hundred million shingles. Add to this several million feet of square timber for frames and culverts, myriads of pickets and fence rails, and you will have an idea of what the cedar growing in the central region can contribute to forest industry.

Hard woods are scattered mostly all over this region, but in a much smaller quantity than conifers. Deciduous trees constitute about 25 per cent of the timber fit for commercial purposes outside of the lands occupied for colonization purposes.

Birch is the most numerous growth in the family of hard woods. And in this species it is yellow birch (*Betula excelsa*) which prevails. Generally speaking, the finest timber of this kind is found in the St. Maurice and Ottawa territories. Black birch (*Betula lenta*), is less abundant, but usually of large size. In the Ottawa territory it attains the diameter of 30 inches. Calculating upon the low basis of 100 feet to the acre, and taking only the trees measuring 12 inches on the stump, there is in this region birch enough to cut at least 200,000,000 feet b. m. of good sound lumber.

White, or canoe birch of a size to make spool wood and saw logs would yield 150,000,000 feet or 250,000 cords. This would be the yield of the primitive growth exclusively. The second growth, which occupies so large a portion of the lands devastated by fire, will ere long supply a much larger yield, and besides a practically inexhaustible supply of fuel.

Of the maples, the hard or sugar variety is the most abundant. It is also the variety which generally attains the largest size. Practically speaking, white or silver maple is not to be found in this region. Red or soft maple is seen mostly everywhere in swamps and lowlands. These two kinds of maple could yield as much timber and lumber as yellow and black birch, and also enormous quantities of fuel for home use and for distillation in the manufacture of pyroligneous products.

Basswood scarcely grows in appreciable quantity east of the River Rouge. It is generally distributed amongst yellow and black birch and hard maple, viz., in rich soil. Many of these basswood trees measure 24 inches in diameter. Very often two

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or three trunks are seen shooting from one stump, and in this case the diameter is smaller. As regards height, it is about uniform for adult trees, which are invariably tall, usually 40 to 50 feet without branches. The yield of this kind of timber in the central region should exceed 100,000,000 feet b. m.

The family of poplars is represented in the forests of this region by three varieties, the balsam poplar, the trembling-leaved poplar, and the cotton tree or cottonwood. In the primitive forest and in the very old "brulés" these trees attain a considerable size and can give good saw logs. Cottonwood, which grows only in good soil and on the river flats, is always large. Were this timber floatable the forests of the central region could supply millions of logs to the lumber industry and about 50,000,000 cords to the pulp and paper industry.

Larch grows in low, swampy lands, alongside with cedar, black spruce, and black ash. It was a tree of great size and great value. It has been destroyed by the grub of the larch fly and has no longer any commercial value. But even in its present condition it can supply an abundance of good firewood.

White and black ash increase in quantity and size as they grow farther toward the western limit of the province. On the rich flats of the rivers Lievre and Gatineau and their tributaries acres of white ash trees may be seen measuring 15 to 20 inches in diameter and from 40 to 50 feet of trunk without branches. This timber grows in all parts of the Ottawa territory, even beyond the latitude of Lake des Quinze. Black ash is also observed in all parts of that territory; the trees are as high as those of the other variety but of smaller diameter and more abundant in number. This tree grows in swamps and wet lands. At least 125,000,000 feet of both varieties could be cut in the central region.

White elm almost invariably accompanies ash, but grows also in many places where the latter is not found. This timber, as a rule, consists of fine, big, and tall trees which dominate the surrounding forests. In the rich soil of the river flats white elm grows with so great a vigor as to support on the same stump several large trees. Upwards of 200,000,000 feet of this timber could be cut in the central region, and if the upper part of the Lievre, Gatineau, and Ottawa rivers is ever made accessible by railway the manufacturers of furniture and flour barrels will obtain therefrom a very considerable supply of raw material.

In the oak family the red variety prevails and would yield the largest quantity of merchantable timber. There are considerable groves of those trees in the Ottawa forests. Blue or swamp oak grows in many places in the valley of the Lièvre River, where hardly any red oak is seen. The several varieties of oak are found in appreciable quantity throughout the Ottawa territory and could contribute perhaps 10,000,000 feet to the resources of the lumber trade.

Butternut is found in nearly all parts of the forests east of the River Rouge and south of the latitude of Lake Keepawa. There is enough of this timber of merchantable dimensions to cut 5,000,000 feet for the manufacture of furniture.

Beech is rather common in the forests of the central region from Quebec to the River Ottawa. Some very fine specimens of this tree may be obtained in the counties of Argenteuil, Labelle, Wright, and in the lower part of Pontiac. The timber could produce over 15,000,000 feet of fine boards for making furniture and wainscoting and as many railroad ties for exportation to France, where these ties are in great demand.

A recapitulation of the details given for each of the several kinds of timber standing in the central region gives the following totals:

Saw logs:		
Soft woods—		
White pine	feet b. m.	30,325,000,000
Red pine	do	7,500,000,000
White spruce	do	60,000,000,000
Hemlock	do	200,000,000
		98,025,000,000
Hard woods—		
Birch, yellow and black	feet b. m.	300,000,000
Maple	do	300,000,000
Oak	do	10,000,000
Elm	do	200,000,000
Ash	do	125,000,000
Beech	do	15,000,000
Butternut	do	5,000,000

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Saw logs—Continued.		
Hard woods—Continued.		
Basswood	feet b. m..	100,000,000
White birch (bouleau)	do....	150,000,000
Poplar	do....	250,000,000
		1,445,000,000
Pulp wood:		
White spruce (from tops)	feet b. m..	15,000,000
Black spruce	do....	20,000,000
Fir	do....	2,000,000
Poplar	do....	50,000,000
		87,000,000
Railway ties:		
Banksian pine	pieces..	150,000,000
Cedar	do....	60,000,000
Beech	do....	15,000,000
		225,000,000
Poles for electric wires, cedar	pieces..	10,000,000
Shingles, bolts and hollow butts	shingles..	8,000,000,000
Culvert timber, cedar	cubic feet..	5,000,000

Add to all that myriads of pickets and rails for fences inexhaustible supplies of firewood and you will have an idea of the wealth and variety of the forests of this central region.

III.—SOUTHERN REGION.

It is the less extensive of the three, as it embraces an area of only 15,381,890 acres, or 7.34 per cent of the total forest area of the Province. And more than 25 per cent of these 15,381,890 acres are included in grants for colonization purposes. To state the facts as they are, it must be said that genuine forests exist only east of the Chaudiere River, and that the portion comprised between the Chaudiere and Lake Temiscouata will be exhausted within a few years, in so far as regards the production of saw logs.

In this southern region cedar is the most valuable timber. It is the finest cedar to be found in the Province, even in Canada, excepting the cedar of British Columbia. It attains colossal dimensions in the rich lands of the Silurian and Devonian formations of the Gaspe Peninsula, where timber explorers have found trees measuring 5 feet in diameter on the stump and upward of 50 feet of clean trunk, without branches. In those rich soils, cedar grows in such an abundance that it is hardly credible for one who has not seen it. In the evidence he gave under oath before the colonization commission, Forest Ranger Aquilas Lajoie stated that out of about 2 acres square of land, in the township of Hamilton, Mr. Robert Sinclair did cut 2,000 cedar logs, besides some spruce logs, the average contents of the logs being 100 feet each. Many of these cedar logs, 14 to 15 feet in length, measured 45 to 48 inches in diameter on the stump and 30 to 33 inches at the small end. Mr. Sinclair also cut at the same place 340 pieces of square cedar 10 by 10 and 12 by 12 inches, 10 to 15 feet in length, and 600 railway ties. These facts can be easily verified by looking at the stumps, which are there yet, near the front line of lot 10, in range 13, of Hamilton. On lot 5, in range 11, of the same township, the following cut was made during the same season, 1902-3, viz, two years ago: Twenty-five thousand cedar and spruce logs, 12,000 logs of yellow and black birch, also of large white birch (bouleau), all the logs containing an average of 100 feet each, and 6,000 cedar ties. On the next lot, No. 4, the cut gave 20,000 cedar and spruce logs, 12,000 birch logs, and 4,000 cedar ties. The logs averaged 100 feet each.

The township of Humqui, in the Metapedia Valley, is about 120 miles west of Hamilton, on the Bonaventure River. On 5 lots in Humqui, viz, lots 17, 18, 19, 20, and 21, in the eighth range, Mr. Joseph Theberge, a man of long experience, swore that the cut of timber would produce 55,000 cedar and spruce logs, averaging 50 feet each, and forming a total of 2,750,000 feet for 500 acres of land, or an average of 5,500 feet to the acre, leaving aside ties and pulp wood.

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The Temiscouata district is just as rich. The scalers of the department of crown lands measured in this district spruce logs 13 feet long and 37 inches in diameter at the small end. The same quality of spruce grows in the counties of Beauce and Compton.

The standing timber of this southern section can supply the following quantities to the trade:

Saw logs:		
Soft woods—		
White pine	feet b. m..	75,000,000
White spruce	do....	12,000,000,000
Hard woods—		
Birch, yellow and black	do....	100,000,000
Maple	do....	50,000,000
Elm	do....	20,000,000
Ash	do....	5,000,000
Beech	do....	10,000,000
White birch (bouleau)	do....	25,000,000
Poplar	do....	15,000,000
Pulp wood:		
Spruce, white and black	cords..	20,000,000
Fir	do....	10,000,000
Poplar	do....	5,000,000
Railway ties:		
Cedar	pieces..	150,000,000
Beech	do....	5,000,000
Poles for electric wires, cedar	do....	7,000,000
Shingles, cedar, logs, and hollow butts	shingles..	500,000,000
Square timber, cedar, for frame and railroad culverts	cubic feet..	25,000,000

The black birch of the Gaspe peninsula, which unfortunately is but little known, is perhaps the finest wood we have in this province for cabinetwork and the manufacture of fine furniture. In color it looks like mahogany and it takes the finest polish. Maple is also a superior material for the manufacture of furniture. The large white birch (bouleau), which has but a thin coat of white sap, with all the core of a reddish color, is a most desirable substitute for cherry wood. The beech growing in the Temiscouata district, especially in the vicinity of the lake at its northeast end, would also supply material of superior quality for cabinetwork.

GENERAL RECAPITULATION.

Now let us recapilulate all the data given for each of the three regions, in order to make an approximate valuation of all that forest wealth. We find the following quantities

Saw-logs:		
Soft woods—		
White pine	feet b. m..	30,725,000,000
Red pine	do....	7,500,000,000
Spruce	do....	107,000,000,000
Banksian pine	do....	10,000,000,000
Hemlock	do....	200,000,000
		155,425,000,000
Hard woods—		
Birch	do....	400,000,000
Maple	do....	350,000,000
Oak	do....	10,000,000
Elm	do....	220,000,000
Ash	do....	130,000,000
Basswood	do....	100,000,000
Birch (bouleau)	do....	10,175,000,000
Poplar	do....	10,265,000,000
		21,650,000,000
Pulp wood:		
Black spruce	cords..	426,874,470
White spruce	do....	50,000,000
Fir	do....	113,618,607
Poplar	do....	155,000,000
		745,493,077

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Railroad ties:		
Banksian pine	pieces..	450,000,000
Cedar	do....	260,000,000
Beech	do....	20,000,000
		730,000,000
Poles for electric wires, cedar	number..	17,500,000
Shingle blocks, cedar	feet b. m..	700,000,000
Square timber, for frame and culverts, cedar	cubic feet..	30,000,000

Taken as a whole, those quantities are rather below than above the real mark, and of course they include those trees only which have the diameter prescribed by the rules of the Department of Crown Lands.

VALUE OF THE FORESTS.

As regards the revenue to be derived by the provincial government under the form of stumpage duties, it is easy to ascertain this value by simply multiplying the quantity of each kind of timber by the tariff rate, which gives the following result:

White pine, 30,725,000 M, at $1.30	$39,942,500
Red pine, 7,500,000 M, at 80 cents	6,000,000
Spruce, 107,000,000 M, at 65 cents	69,550,000
Banksian pine, 100,000,000 M, at 65 cents	6,500,000
Hemlock, 200,000 M, at 65 cents	130,000
Hard woods, 1,110,000 M, at $1.30	1,443,000
White birch, 10,175,000 M, at 65 cents	6,598,750
Poplar, 10,265,000 M, at 65 cents	6,672,250
Pulp wood, 745,493,077 cords, at 40 cents	298,197,230
Railroad ties, 730,000,000 pieces, at 2 cents	14,600,000
Poles, 17,500,000 pieces, at 5 cents	875,000
Shingle blocks, 700,000 M, at 65 cents	455,000
Square cedar, 30,000,000 cubic feet, at 2 cents	600,000
	451,563,731

From this deduct one-fifteenth part for the timber growing in seigniories and on other lands held by private parties, whose timber is not subject to government stumpage, and there is left $421,459,482, representing for one hundred years an annual revenue of $4,214,594.

We have seen that the forest area of the Province covers 327,721 square miles. Of those forests, about 84,000 miles are held in freehold by private parties and under license for the cut of timber, which leaves upward of 243,000 miles available and to be placed under license. At the comparatively low rate of $75 per mile, the bonus on the licensing of those available berths would bring to the provincial treasury $18,225,000, which spread over the one hundred years represents another annual revenue of $182,250.

* * * * * * *

To remain on the safe side, let us take exclusively what is actually available, viz, the forest of the southern and central regions, and only 30,626,676 acres in the northern region, comprising the upper section of the six counties of Champlain, St. Maurice, Maskinonge, Berthier, Joliette, Montcalm, and 25,250,876 acres of the most accessible woodlands in Chicoutimi and Saguenay. This brings down to 109,055,427 acres the forest area actually available.

At the conservative estimate per acre of two and a half cords for black spruce, one-half cord for white-spruce tops, and one-half cord for fir, the following quantities of pulp wood could be cut on those 30,626,876 acres of woodlands: Black spruce, 76,567,190 cords; white spruce, 15,313,438 cords; fir, 15,313,438 cords, forming a total of 107,194,066 cords. Computing the white-spruce saw logs at only 500 feet b. m. to the acre, this territory would produce 15,313,438,000 feet of lumber.

* * * * * * *

HOW LONG WILL OUR FORESTS LAST?

The most plausible manner to answer this question is to compare the contents of the forest with the yearly consumption, as shown by the census. And not to overstep the limits of sound reality, we will take only the reduced quantities given for that portion of our forests actually available and enjoying the advantage of accessibility to railroads

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and waterways. Dividing the quantity in stock or in forest by the quantity of the yearly consumption the quotient shows the number of years during which the supply will last. This result is shown in the following table:

	Stock.	Yearly consumption.	Years.
Pine, feet	37,900,000,000	460,631,484	82
Spruce, feet	87,313,438,000	641,239,520	137
Cedar, shingles and square, feet	1,660,000,000	68,777,000	24
Cedar ties, No	220,000,000	2,703,807	81
Cedar posts, No	17,500,000	119,072	147
Hard woods, feet	356,000,000	14,082,334	25
Pulp wood, cords	176,783,966	526,865	334

The number of years shows the mathematical period of duration without taking into consideration the various circumstances of a nature to shorten or to lengthen that period. Fire, indiscriminate settlement, unwise or unlawful cutting, waste in lumbering operations, the power of self-reproduction on the part of certain kinds of timber, and the extension of railways through the forest are in this respect factors of potent efficacy and deserving of the most serious consideration.

Article in the Toronto Globe of February 29, 1908, entitled "Forest wealth and forest industries of Quebec," by E. T. D. Chambers, journalist and secretary of the North American Fish and Game Protective Association:

The forests of Quebec not only supply the raw material for the staple industry of the province, but they also constitute one of the main sources of the provincial revenue. The importance to the province of its forest wealth is illustrated by the fact that outside of the Dominion subsidy—now that it has been so handsomely increased—the largest receipts from any one source by the treasury of the province are those from the department of woods and forests, which in the last annual statement placed before the legislature were shown to amount to over $1,395,000.

The total value of the forest products of Quebec, from the standpoint of provincial revenue alone, has been estimated at $451,563,730, and it is calculated that the amount of money that would have to be expended among lumbermen and farmers for the labor and supplies essential to the production of this raw material and to its delivery, either to the railways by which it may be carried or to the rivers where the drive begins—without taking into consideration at all the cost of river driving—would exceed $2,709,000,000.

Mr. J. C. Langelier, inspector of forest rangers at Quebec, estimates that the stumpage dues on such of Quebec's standing timber as is capable of being utilized with the existing means of communication would yield the government over $188,958,000, and that the lease of the present unlet portions of the crown forest domain is easily worth an additional $18,000,000.

The entire forest area of Quebec is placed at 209,741,463 acres, or 327,721 square miles. About one-fourth of this area, or some 84,000 square miles, is held either in fee simple or leased for lumbering operations from the crown. Much of what is now held in fee simple was conceded under the old seigniorial tenure system, which prevailed up to 1854.

Lessees of crown timber lands in the Province of Quebec are simply holders of government licenses to cut timber thereon from year to year upon certain conditions, annually renewable: and all sales of such licenses are required by the law to be made by auction, after having been duly advertised by the government in the Official Gazette and in such other newspapers as the minister at the head of the department may direct. Before such sales occur the minister fixes an upset price upon each limit of so much per square mile, and all licenses to cut timber so sold are subject to an annual ground rent of $3 per square mile or fraction thereof. All licenses expire on April 30 after being issued, but the licentiate who conforms to existing regulations has until September 1 following the right of renewal of the same. All transfers of limits or of portions thereof are subject to the acceptance of the minister and also to the payment of a transfer bonus of $4 per square mile to the government. Sworn statements of the amount of timber cut upon each limit under license must be furnished to the government annually by the licentiates or their representatives.

Pine trees are not allowed to be cut on crown lands when less than 12 inches in diameter at what is known as the stump—namely, 3 feet from the ground. Nor can ordinary spruce be hewed when measuring less than 11 inches, and trees of other

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descriptions measuring less than 9 inches diameter, though swamp spruce may be cut at a diameter of 7 inches.

Stumpage dues vary according to the timber upon which they are levied. On oak and walnut it is 4 cents per cubic foot. On saw logs, boom and dimension timber it is so much per thousand feet, board measure; from 65 cents per thousand on spruce, hemlock, balsam, cypress, cedar, and poplar up to $1.30 per thousand on white pine. On pulp wood the stumpage dues are 65 cents per cord of 128 cubic feet, with a reduction of 25 cents per cord on timber manufactured into paper pulp in the Dominion of Canada. Neither these stumpage dues nor yet the present rate of ground rent for licenses to cut timber—namely, $3 per square mile per annum—are to be increased until September 1, 1910. Violation of any of the laws or regulations of the department renders the lumberman's license liable to cancellation.

The importance of a proper protection of the forests against fire has not escaped the attention of the government. Competent authority has stated that the destruction of timber by fire in the Province of Quebec has exceeded in value all that has fallen by the ax of the lumberman. Prior to 1906 a fire tax was imposed upon lessees of crown timber limits, and with its proceeds a limited number of fire rangers was engaged to patrol the forests and to aid in subduing, and as much as possible, in preventing forest fires. Two years ago the system of fire protection was entirely changed. The fire tax was abolished and both the selection and the payment of the rangers were left in the hands of the limit holders, who, of course, have an enormous interest in the protection of their limits. The men appointed and paid by them receive their official nomination from the government. Limit holders may, of course, employ as large a number of rangers as they please on their limits, but in the event of any limit holder neglecting to put on a reasonable number of men the government will do so and collect the cost from the limit holder in question.

A number of very extensive forestry reserves have been created by the government of the Province in recent years, which by excluding settlers from territory unfitted for colonization will tend to the preservation of the forests. There are now in existence no less than 11 of these reserves, covering a total area of 168,386 square miles. The Saguenay and Labrador reserve is the largest of the lot, extending from the easterly boundary of the Province on the one side to the height of land southeast of Lake Mistassini on the west; on the north being bounded by the watershed between the valley of the Hamilton and the St. Lawrence, and on the south extending to within a few miles of the Saguenay and of the lower St. Lawrence River and Gulf. It includes 110,000 square miles of territory. Next in size are the Ottawa and St. Maurice reserves, and then come the Laurentides National Park, the Gaspe Park, the Rimouski and Chaudiere forest reserves, and those of Bonaventure, Riviere Ouelle, Barachois, and Temiscouata. The Ottawa reserve contains 27,652 square miles, the St. Maurice 21,121 square miles, the Montmorenci 3,271 square miles, the Gaspe Park 2,523 square miles, the Bonaventure 1,733 miles, etc. The creation of these forestry reserves is the work of the Hon. Adelard Turgeon, the present minister of lands and forests, who has become deeply impressed with the importance of forest protection and has secured the adoption and sanctioning of the necessary orders in council for the setting apart of the preserves in question, believing that the interests of agriculture and colonization were threatened, as well as the forests, by the gradual disappearance of the trees that protected the sources of the rivers, provided natural irrigation, and at the same time prevented disastrous floods by permitting the gradual thawing of the accumulation of the winter's snow.

Not only is the peril from fire largely removed from timber limits by the placing of them within the forestry preserves of the Province, within which settlement is prohibited, but there is also taken from them the danger to which much standing timber has been exposed in the past at the hands of piratical speculators, who made it a business to take up land wherever there was a good growth of timber to be removed under the false pretense of bona fide settlement.

A well-known lumberman told me the other day that he considered the inclusion of his limits in one of the forest preserves to have enhanced their value by at least $50 per mile, and it is understood that a number of bankers who are in the habit of advancing upon timber limits hold the same view of the matter. The government can collect neither rental nor stumpage from a limit which has been burned over or stripped by pirates, so that, whether in private hands or still the property of the Province, the increased value given to standing timber by Mr. Turgeon's forestry reserve policy benefits the Province equally with the lumbermen.

Amongst other good work recently done by Mr. W. C. Hall, superintendent of forestry at Quebec, is the enlistment of the aid of the Roman Catholic clergy. Through Monsignor Laflamme the archbishop of Quebec was approached on the subject and authorized the sending of a letter to every parish priest in his archdiocese, to be read from the pulpit, calling attention to the necessity for great caution in the setting

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of fires near the forest and to the enormous losses caused by forest fires. Father Lemoine, one of the missionaries to the Montagnais Indians, translated into their dialect the forestry notices which are posted up in both French and English, all over the wooded portions of the Province, and these have been freely distributed in the country in which these Indians do their hunting. From them, however, very little danger to the woods is to be apprehended, for without the forest they can not live.

So much destruction has been caused by settlers' fires in the Province of Quebec that special legislation now governs the clearing of forest lands for settlement. Neither in the forest nor yet within a distance of a mile from a forest does the law allow any person, except for clearing purposes, to set fire to any pile of wood, branches, or brushwood, or any tree, shrub, or other plant, or any black loam or light soil, or any trunks of trees, or trees that have been felled at any period during the year. In clearing land for settlement purposes, however, such brushwood and stumps may be burned between June 15 and September 1 and between November 15 and March 15, except in the event of continued drought between June 15 and September 1, in which case the minister is empowered to prohibit the setting of fires for the purpose of clearing lands during such drought

The most extensive of Quebec's timber lands are situated north of the lower St. Lawrence and of the forty-eighth degree of latitude going west from its intersection by the river a little west of the mouth of the Saguenay. The forest comprised within these limits, and known as the northern forest region of Quebec, consists of 77 per cent of the provincial territory of wooded lands. The region in question embraces the territories of Abitibi, of Mistassini, of Ashuanipi, the enormous county of Chicoutimi-Saguenay, and the extreme northwest of the counties of Champlain, St. Maurice, Maskinonge, Berthier, Joliette, and Montcalm. It contains the largest spruce forests of Quebec, and quite an extent of valuable pine lands, though these latter are not nearly as extensive or as valuable as those situated in the forest region of central Quebec. In the northern region the best pine is in the district of Abitibi, where trees are often found of 30 inches diameter and a height of 50 to 60 feet of trunk under the lowest branches. It has been claimed that the Abitibi district alone still contains over 300,000,000 superficial feet of standing pine. Its banksian pine, which is now much sought after for railway ties, is very abundant in portions of far northern Quebec, and grows to a very large size. Cedar is so abundant in the southwestern portion of Abitibi that it is claimed that 20,000,000 ties could easily be furnished, in addition to a couple of million feet of square timber and large quantities of pickets, fence rails, telegraph poles, etc.

The chief wealth of the northern forest region of Quebec is in its spruce, however, where it forms three-fifths of the coniferous forest available for commerce. If, as claimed, it is reasonable to allow 2½ cords of this wood suitable for the making of pulp to the acre, these northern forests should furnish no less than 406,874,470 cords of pulp wood. Enormous quantities of white spruce of a very large size are found in southern Abitibi, capable of supplying large numbers of saw logs and much pulp wood. Birch and poplar, as well as balsam, are also very abundant in many parts of the northern forests of Quebec.

The greatest variety and the richest quality of timber is to be found in the central region of the Province, and especially in the new forest reserves of Ottawa and the St. Maurice. This region is situated between the St. Lawrence and the forty-eighth degree of north latitude, and is larger than the combined areas of Nova Scotia and New Brunswick. White, red, and banksian pine, white and black spruce, cedar, and balsam are the chief varieties of timber. The best of the pine is in the counties of Wright and Ottawa and in the St. Maurice country. In parts of the counties above mentioned it is possible to find 10,000 feet of pine to the acre. White spruce is very abundant in the St. Maurice country, though it is not quite as large there, as a rule, as in the Ottawa district, where it is less abundant. The first cutting of this white spruce in the central region of the Province would, according to an official of the woods and forest department of Quebec, supply sixty billions of feet, board measure, even though no logs were used having a less diameter than 8 inches at their smaller end. The upper parts of the trees would be sufficient to give 15,000,000 cords of pulp wood. The balsam fir of this region is estimated at 500,000,000 feet of saw logs and two and a half million cords of pulp wood. Sixty million railway ties, 10,000,000 telegraph poles, and fencing material in enormous quantities may be had from the cedar forests of this region. The other important woods are red and white birch, white, bastard, and sugar maple, poplar, tamarack, elm, oak, etc.

The forests on the south of the St. Lawrence are the least important in the Province, the country having been much more cleared of timber. The most important wood of the southern region is cedar, which is here found of a better quality and larger size than in any other part of Canada, apart from British Columbia. In portions of

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Gaspe, cedar trees of more than 5 feet in diameter have been cut. White-spruce trees in the Lake Temiscouata district have produced logs measuring 37 inches in diameter at the small end, and the spruce of Beauce and Compton is also very large. Magnificient bird's-eye maple and red birch, producing handsome material for the cabinetmaker, are found in the Gaspe peninsula.

The enormous development in the lumber industry in Quebec is indicated by a comparison of the receipts from woods and forests forty years ago with those of the present time. The commissioner of crown lands' report for 1866 shows that the share of the revenue of united Canada, belonging to lower Canada, from this source, amounted in that year to $294,484.73. Twenty years later, namely, in 1886, the same department for the Province of Quebec yielded $630,475.84. The report of the minister issued in 1906 showed a revenue from the same sources of $1,602,390.24, the receipts having increased fivefold in forty years. Not more remarkable than the increase in these receipts is the enormous growth of values, spruce being more valuable to-day than pine was a comparatively few years ago.

In the woods alone it is calculated that over 40,000 lumbermen and others find employment during the winter season in the Province of Quebec cutting logs and teaming them to the rivers, down which they are to be driven in the spring. The river drivers, the sawmill men, or raftsmen, as the case may be, the railway and steamship men who handle the lumber, the farmers who grow the supplies for the lumbermen and others, the manufacturers and their agents who provide the lumbering tools and mill supplies, all are dependent, equally with the lumbermen themselves, upon the maintenance of the forest.

Is it to be wondered at that the future of the Canadian forests and of their important industry commands much attention, or that thoughtful people are asking themselves "What of the future?" Quebec has for a long time been a large feeder of both the British and American markets. The demand is likely to increase rather than to diminish, and pulp makers are reaching out for a smaller growth of the woods than they ever did before. Mr. Hall, who is an authority upon Quebec's forests, says that though some may question the ability of timber lands to maintain the supply for an indefinite period, yet by the exercise of reasonable care and intelligence by both the controlling power and the trade, none need be anxious as to the forests lasting in perpetuity. And in this connection he cites the case of Sir Henry Joly de Lotbiniere, ex-lieutenant-governor of British Columbia, who has all his life carried on a lumber business on freehold lands in the county of Lotbiniere, about forty miles from Quebec City. The territory has been cut over in sections, no trees under a certain size being taken, and a generous nucleus of forest always remaining after each section was left to recover itself. The result of this policy is that there is now as much timber as ever on the whole tract, the present quality being in no respect inferior to the first cutting. Under favorable conditions it is claimed that pine will show as large an annual growth as spruce, but even should pine ever become practically exhausted in Quebec, the afforestation of the land with spruce could be accomplished without much difficulty. Such conditions have already arisen in the eastern townships, and are now apparent on the banks of the Gatineau, where lands formerly cut over and devastated by fire are developing a goodly growth of spruce.

Article in the Toronto Globe of February 29, 1908:

DEVELOPMENT IN NORTHERN QUEBEC.

Mr. R. H. Welden, of Montreal, who is a large dealer in timber limits and water powers in the Province of Quebec, was in Toronto recently in connection with a large pulp and paper deal now being consummated, involving the investment of about $1,500,000 by a combination of American paper mills, in timber lands in Quebec.

"There are millions of horsepower undeveloped in our province," said Mr. Welden, "and in almost every instance these water powers are surrounded with an almost inexhaustible supply of spruce. With judicious cutting and the adoption of reforestation methods, it would be quite possible for any large pulp and paper concern in this way to settle for themselves the perennial worries about wood supply."

Asked as to what he thought of the effect of the proposed prohibitive legislation on the export of pulp wood from Quebec, Mr. Welden stated that he did not think this would prove to be quite so grave a situation as it was thought to be. "It may," he said, "for a while have the effect of increasing the cost of paper to the consumer, but I am thoroughly convinced that it will only be a short while when the American mills will adopt the practice of manufacturing their pulp right on the ground and save the heavy transportation and other charges incident to the present method of shipping rossed pulp wood from Quebec.

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"That is, of course, the object of the proposed regulations, and I am certain it will work no great hardship on the paper mills, and will do much toward directing the attention to our magnificent power and timber resources."

In the Lake St. John and Saguenay districts alone, Mr. Welden stated that a cut of 1,000,000 cords of fine spruce per annum is available and all within easy rail and water communication. "Of course," said Mr. Welden, in conclusion, "the freehold lands are the thing every one is after now, as they are not subject to any of the dues and charges imposed upon licensed lands, and will not be affected by any of the new proposed legislation."

Extracts from a paper on "The forest situation in the Province of Quebec," by C. G. Piche, forester to the department of crown lands of the Province of Quebec, delivered before the Canadian Forestry Association at Montreal, March 12, 1908, and found in the ninth annual report of the association:

Among provinces of the Dominion, Quebec holds a prominent place in the forest industry, as much by the extent of her forests as by her numerous manufactories, such as saw, pulp, and paper mills. Moreover, we have at our command remarkable natural resources. Thus, our water courses besides allowing us to convey our wood to the mills without too much expense, furnish us with considerable hydraulic power (p. 71). * * * I have classified our forest lands according to the character of the owners, into three groups—

1. *Private holdings.*—The wooded lands belonging to individual owners form a grand total of 5,000,000 acres. (Census of 1901.) These lands are generally the property of farmers; that is, of small proprietors; one might say small forests, for the area of these lands rarely exceed 100 acres, save for some few exceptions. * * *

2. *Timber limits.*—The second group includes all the forest concessions made by the provincial government to individuals or to companies. These concessions are generally called timber limits. The territories under timber license consist of about 45,000,000 acres. Beginning at the boundaries of our villages, they extend on the north side nearly to the sources of various affluents of the St. Lawrence and onthe south side they often extend to the very frontiers of the Province. * * * (p. 72).

In this group there is very little virgin timber left, as it has been exploited for more than fifty years. All the wood possible has been cut to satisfy the needs of the market. At first only the finest of the white pines were taken, then came yellow pine, then the red pine, then the spruce, and to-day all wood that can be floated is utilized. Of the conifers there is nothing but second growth left. In 1906 the total cut on these timber limits runs to a little less than a billion feet board measure. * * *

3. *Unlicensed forest lands.*—The forests of the third group are the exclusive property of the state, and are free from all incumbrance. In this class are included all the lands of the crown which have not as yet been either leased or sold. * * * These lands have a total area of 155,000,000 acres. Unfortunately, however, all of it is not forested. It must not be forgotten that the farther one goes to the north, the more one observes the rapid diminution both in the number of species and in the dimensions of the trees, so that beyond the fiftieth parallel, very little forest is to be found, and 13 degrees farther north, in Ungava, there is no more aborescent vegetation.

This is the beginning of the desolate country of the arctic region. * * * The principal trees are white spruce, the black spruce, jack pine, and the aspen, white birch, and tamarack.

Summarizing the results, it will be seen that the forest lands of Quebec include 5,400,000 acres belonging to the farmer, 45,000,000 acres leased to the lumbermen, and 80,000,000 acres still virgin. This makes a total of 130,400,000 acres in forest. (P. 74.)

* * * * * * *

NEED FOR CAREFUL MANAGEMENT.

It is certain that a great part of our forests has been ravaged by fire, and another large part has been greatly impoverished by vicious exploitation, but there still remains considerable which has been carefully managed. There are also a large number of timber limits which have not yet been entirely exploited. There still remain to us large quantities of wood in these forests. Estimating the lowest yield per acre at a little less than 2,000 feet b. m. of commercial wood of all sorts, we should have nearly 75,000,000,000 feet b. m. If these forests were exploited on a scientific basis, one billion and a half feet at least might be cut annually on these lands, and that without injuring or impoverishing the population, but rather the improvement of their condition. The actual cut now reaches nearly a billion feet. There

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still remains a large margin, and we have no need to entertain anxiety on this account regarding the limits I have just mentioned. Our forest wealth is still considerable, but it must be admitted that it is much reduced. Wood is less abundant and especially less accessible than formerly. The logs floated down on water courses each year are smaller. The exploiters are obliged to work always farther and farther from the basis of operation. Regions formerly neglected on account of the difficulty of access are now exploited. In spite of the introduction of substitutes, such as spruce for pine, etc., or the improvements of transportation methods, the price of wood rises steadily.

It is undeniable that wood is becoming scarce. Thus it is not a question of finding new substitutes or of further improving methods of manufacture, but of renewing and improving the quality of the raw product, for it is that which is beginning to decrease. (P. 75.)

FOREST RESERVES OF QUEBEC.

Some forest reserves have been established, and these reserves are designated thus: Saguenay, Labrador, Lake St. John, St. Maurice, Maskinongé, Ottawa, Chaudières, Rivière, Quelle, Témiscouata, Rimouski, with the parks of Gaspé and the Laurentides, including an area of 107,821,653 acres, comprising, collectively, one of the vastest forest territories which has been so far set aside for this object in all of North America. (From the address of Achille Bergevin, M. P. P., before the Canadian Forestry Association, in Montreal, March 13, 1908. Found on page 107 of the ninth annual report of the association, 1908.)

PRACTICE IN CUTTING AND IN SELLING PULP WOOD IN QUEBEC AND LEGISLATIVE POLICY.

Before the Canadian Forestry Association, at Ottawa, January 11, 1906, a paper entitled "The pulp-wood industry" was read by Mr. Herbert M. Price, president of the Province of Quebec Pulp Wood Association. The paper was printed in the report of the convention (1906), pages 122 to 128:

THE PULP-WOOD INDUSTRY.

The subject of pulp wood is one that has come to the front within the last ten years prominently from many points of view, and has many collateral bearings, and has, I believe, been instrumental in bringing the question of forestry as practical politics before the public.

DIMENSIONS OF WOOD CUT.

There is no doubt but that a smaller diameter of wood has been cut than is in the true interests of the pulp and paper mills to accept or the owner of private lands or limits to cut. Some twelve years since the diameter shipped was 6 inches and up, while now 4 inches and up is accepted.

The actual quantity of wood is less in a cord of 4 inches and up than in 6 inches and up, but competition between buyers has brought about this lower minimum. It would be much in the interest of the owner of timber lands to make only 5 inches and up; he would get a better price for his wood, his lands would not be so depleted and depreciated, the jobber could afford to make it at a less price, and the paper mill could afford to pay more for it

SORTS OF WOOD AND DIMENSIONS.

Practically there are three sorts of pulp wood—spruce (including balsam or sapin), hemlock, and poplar—but this paper will deal generally with spruce, as quantities of hemlock and poplar are so small and do not materially affect the question now under discussion, and hemlock is cut primarily for its bark and not for pulp wood.

Pulp wood is divided into rough wood (wood with the bark on), peeled wood, hand-shaved wood, and rossed wood.

Rough wood is made generally in the winter in whatever lengths are most convenient, being cut down to 4 feet before being shipped to the United States, and sometimes to 2 feet. If trees are cut after winter sets in, same can be hand peeled to advantage the following spring, as the sap will then run.

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Peeled wood is peeled in the woods in June, July, and August, and mostly cut into 4-foot lengths and hauled out the following winter or driven the following spring.

Hand-peeled wood is generally peeled with a drawknife the following spring and summer, after being made rough in the woods and after being either hauled out or driven. The later in the summer it is so hand peeled the harder the work is.

Rossed wood is the rough wood machine peeled by a barker or rosser. The loss of wood in this case is greater than when it is hand shaved and may be estimated at from 20 to 30 per cent, according to the size and quality being peeled, as, naturally, the smaller the diameter of the wood the greater the waste or loss.

Up to within the last two years the wood barker or rosser only barked sticks of wood not over 2 feet; but now the Moreau barker rosses 4-foot sticks.

CONTENTS OF A CORD.

The number of pieces in a cord of course varies greatly, according to the size of the wood cut; but from actual measurement a cord averaging 4¾ inches in diameter takes 174 pieces; 5½ inches, 122 pieces; 6½ inches, 100 pieces; and 7 1/6 inches, 82 pieces, showing the extra labor and handling in cutting small wood.

In shipping wood by rail it is found that a cord of wood peeled one summer and shipped the following winter or spring weighs about 3,000 pounds, while unbarked wood comes near 3,800 pounds per cord.

VALUES.

In speaking of values, of course points of shipment and favorable rates of transportation by rail or water make the price; but I am taking points favorably situated in the Quebec district as a basis. The values of spruce pulp wood have gone up greatly during the past ten years, and especially within the last five. Rough wood that sold at $2.50 a cord, 6 inches and up, in 1892 sold in 1904 at $4.50 for 4 inches and up; but the demand for this wood has decreased, the mills preferring peeled or rossed, as they get apparently more for their money.

Peeled wood is sold from $6 to $6.50 a cord in conjunction with hand shaved.

Rossed wood has recently come into great demand, no doubt the mills having found it to their advantage to use it at the price they paid, say, $7 to $7.25 per cord of 128 cubic feet cut into 2-foot lengths, 4-foot lengths not being in demand. The fires of 1903 in the Adirondacks and elsewhere in the United States, also in Canada, forced owners of stumpage so affected to utilize at once what wood was fit for rossing. This no doubt brought a surplus on the market.

Various percentages of balsam or sapin are shipped in with spruce pulpwood.

Stumpage on private lands well situated has practically doubled in the last five years and, consequently, the values of such lands have risen very greatly. Stumpage as high as $10 an acre has been paid on favorable lots. Lands that five or six years ago had greatly depreciated by extensive logging operations were given a new value by the market demand for pulpwood.

MEASUREMENT.

In the Quebec district pulp wood is generally bought French measure and shipped English measure, the French cord being 8 feet 6 inches by 4 feet 3 inches by 4 feet= 144 cubic feet, against English cord of 8 feet by 4 feet by 4 feet=128 cubic feet. The short way to bring one measure into the other is to deduct one-ninth from French measure or add one-eighth to English measure.

DISTANCES TRANSPORTED.

To show the distances transported and what an important part the north shore of the St. Lawrence River plays in the question of pulp wood, it may be mentioned that the Battle Island Paper Company, of Fulton, N. Y., situated near Oswego, on Lake Ontario, draw the greater portion of their supply from part of the Saguenay River at Ha Ha Bay wholly by water, a distance of nearly 600 miles.

Pulp wood is also shipped from Escoumains, some distance below Tadousac.

QUANTITIES CONSUMED.

It is estimated that the United States consumes yearly about 2,500,000 cords of pulp wood, of which we ship them about 25 per cent.

During the past year the Adirondacks alone produced some 580,000 cords of pulp wood, equal to, say, 350,000,000 feet b. m. This cutting is practically at our own door

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and tells us that some day Canada will have much more to say as regards the supply, as prices of stumpage in the United States have gone to very high figures.

The department of customs at Ottawa informs me that the total quantity of pulp wood exported from Canada during the fiscal year ending July 1, 1904, was 479,238 cords. These figures, in conjunction with the information I give, go to demonstrate that the United States looks to the Province of Quebec for a very large proportion of this 25 per cent.

There were 259,231 cords of pulp wood cut on crown lands in the Province of Quebec in the year ending June 30, 1903, of which 70,576 cords were exported from Canada. I understand from the department that the amount cut for the year ending June 30, 1904, was very similar to the foregoing year, but the returns are not yet published. Mr. J. E. A. Dubuc, in his pamphlet of the present year on pulp wood, states that from 720,000 to 750,000 cords are cut yearly in the Province of Quebec, of which 300,000 are converted into pulp and paper for local consumption and export. These statements show the large proportion of pulp wood that is cut on private lands in the Province of Quebec. The estimated amount of pulp wood cut on crown lands in the Province of Ontario during the past year is 60,000 cords.

UNSATISFACTORY MANNER OF SELLING TO THE UNITED STATES.

There is much to be done to put the pulp-wood trade on a satisfactory basis as between the seller in Canada and the purchaser in the United States, as the custom is now for the seller in Canada to take mill measurement, or final measurement, in the United States, in spite of the fact that wood is generally sold f. o. b. car or boat in Canada. The Pulpwood Association has discouraged strongly any sales made deliverable at mill in the United States, believing that debt should be one collectible on this side of the line, and that the United States mills should be responsible for changes in freight and also for any duty imposed by their Government, the Canadian shipper being responsible for any export duty imposed by Canada. There is often much difference in measurement of boats and cars between Canada and the United States, and same must continue as long as the present system exists.

DUTY ON PULP WOOD.

All pulp wood is admitted free into the United States at present, but about two years since the United States Government commenced collecting 20 per cent duty on rossed wood, claiming under the Dingley tariff that it was a manufactured article. The payment of duty was protested by interested parties and the case tried before the Board of General Appraisers in New York, which decided that rossed pulp wood was free. The Government then ceased collecting, but appealed, and the case went before the circuit court in the district of Vermont, which affirmed the decision.

The Government again commenced collecting duty on rossed wood in July, 1905, at 20 per cent on the cord valued at $7, or $1.40 per cord, and immediately afterwards lowered the valuation to $5.50, or $1.10 per cord, and ceased collecting on November 6 last, in consequence of the decision of circuit court of Vermont in October last, but has again appealed, and the case will go before the circuit court of appeals. The strong probabilities are that the Government's contention will be set aside. The Government has, however, not yet made a refund of duty collected.

PROVINCE OF QUEBEC PULPWOOD ASSOCIATION.

An association called the "Province of Quebec Pulpwood Association," of which I have the honor to be president, was formed in 1902, and I think well to quote from its constitution the reasons for its formation:

"The object of the association shall be to promote the interests and conserve the rights of those engaged in the pulp-wood business or in the manufacture and preparation of pulp wood, to hold meetings of the members for the consideration and discussion of questions affecting those interests, and, by union and cooperation, to build up and foster the pulp-wood business.

"To inaugurate a uniform system of measuring and selling pulp wood to Canadian and American pulp and paper mills.

"To assist in encouraging shippers to export only a good class of pulp wood, so as to maintain a good name for pulp wood shipped from the Province of Quebec.

"To encourage the strict observance of contracts between the producers of the wood, shippers of same, and the mills in Canada and the United States who consume it.

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"To look after the facilities for shipment of wood given by railroads and water transportation companies.

"To foster good will between the shipper and the consumer and to be the means of removing differences between them."

The association has, I believe, done and is doing good work on the above lines.

EXPORT DUTY.

The question of an export duty being imposed by Canada on pulp wood has been much discussed, but I feel that the safest course and the wisest one, is to let things remain as they are, for I believe this policy conduces to the interests of the many. We can not afford to lose an export wood trade before a home market is found. This country's resources are so immense in pulp wood that we can afford for some time yet to export the raw material andu ntil we are able to find capital to build up mills to manufacture and export the product; besides, the building of pulp mills in Canada apart from paper mills is not particularly encouraging at present.

When we consider the enormous and almost unlimited supplies of pulp wood derivable from the north shore of the St. Lawrence River alone, we can safely feel that this question may be left where it is for the present. New supplies are constantly coming into sight, and I may mention the island of Anticosti as one of these, and which will probably prove itself to be a shipper of pulp wood and pulp on a large scale in the near future. The country between Quebec and Hamilton Inlet, a distance of over 750 miles in a straight line, is a fair reserve for the future. We are not doing posterity a wrong as regards this question of an export duty by not agitating it now. Hon. Mr. Parent, when premier and minister of crown lands of the Province of Quebec, in his speech on the pulp wood question, in April, 1903, stated that there were 62,592 square miles of crown lands under license and 100,000 square miles of absolute forest not yet under license, making 162,600 square miles of crown timber lands, amounting to 104,000,000 acres. Since that date the mileage under license has increased to over 67,000 square miles.

Besides the above, there were some 20,000,000 acres of seigneuries and patented lots, the large proportion by far being timbered.

The immense quantities of pulp wood in the Provinces of Ontario, New Brunswick, and Nova Scotia supplement those of the Province of Quebec.

The depreciation in value of timber in the event of an export duty would be very considerable, as the duty, in order to meet the views of its advocates, would have to be made heavy enough to make export prohibitory. It would also stop for an indefinite time the purchase by Americans and others of our unsold timber lands and would certainly decrease the resources of the provincial governments owning same.

Further sales of government timber lands could not be made to advantage and it would inflict a heavy blow on all spruce limits now under license, except those owned by pulp and paper mills. Thousands of square miles of timber lands would lie unworked for years with consequent loss in settlement and population.

The question of retaliation by the United States Government I do not discuss, but it is a factor in the case, although I feel strongly that we must draw the line somewhere as regards concessions. A policy of reciprocity, if obtainable, would be preferable to inaugurating a tariff war.

Pulp wood has been the means of saving waste in the woods where made in connection with logging operations.

A certain portion, and by no means a small one, of our northern spruce-producing country can not be developed to advantage by the building of pulp and paper mills, but the pulp wood on same can be shipped to very great advantage.

Every settler is more or less interested in the pulp wood trade, and it has helped largely the clearing and settling of land.

The greatness of our water powers will be a telling factor in the future in solving this question of export duty.

SHIPMENTS TO OTHER COUNTRIES.

The shipment of pulp wood to other countries than the United States is to-day barred by transportation charges, as Europe is supplied to a great extent by Scandinavia on account of its proximity.

LAWS OF THE PROVINCES.

The Province of British Columbia has now no law in force regarding timber cut as pulp wood, as they repealed the law in 1901 which charged a rental of not more than 2 per cent per acre and royalty of not over 25 cents per cord.

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In New Brunswick, if pulp wood is cut on crown lands, it is subject to the dues of merchantable lumber, which for spruce are $1.25 per thousand superficial feet and no log to be cut that will not make a log 18 feet long by 10 inches at the small end.

The Province of Nova Scotia issues twenty-year leases of timber lands for pulp-wood purposes at $1 per acre, authorizing the lessee to cut timber of not less than 5 inches in diameter. They, however, issue special leases in case of erection of pulp mills, etc.

The Province of Quebec charges a stumpage of 65 cents on pulp wood per cord of 128 cubic feet, equal to 600 feet b. m., with a reduction of 25 cents per cord on timber manufactured into pulp or paper in the Dominion of Canada, and in connection with this rebate the United States Government imposed a countervailing duty of 25 cents a ton of 2,240 pounds on all pulp made from wood cut on crown lands in the Province of Quebec. Pulp made in Ontario from wood cut on crown lands in the Province of Quebec was also subject to this countervailing duty. This stumpage of 65 cents per cord is equal to 91 cents per 1,000 feet.

The government of the Province of Ontario cover the cutting of pulp wood to a great extent by arrangement between the Province and parties acquiring areas, each individual case being dealt with according to circumstances, but generally the dues, as fixed on the 20th of March, 1900, are 40 cents a cord. A law was passed on January 13, 1900, prohibiting the export of pulp wood from the Province of Ontario in an unmanufactured state. The lease for twenty-one years with the Rainy Lake Pulp and Paper Company calls for 40 cents a cord for spruce, nothing to be cut under 6 inches.

INCREASE IN PULP-WOOD TRADE.

The demand for pulp wood must increase rapidly in the future as it has in the past few years, as the number of articles made from pulp is daily increasing and the spread of education means more pulp wood in consequence of the dependence of the paper makers on the article. It is well to remember that what is disastrous to many trades is generally beneficial to pulp wood, viz, war, as past experience has shown the very great demand for paper that it produces.

The uses of paper are also becoming manifold, and so the circle is constantly enlarging. He would be a rash man who would undertake to limit the uses paper may be put to in the not distant future.

SUGGESTIONS RE FUTURE POLICY.

Although the pulp-wood industry is regarded as inimical to forest culture, it must inevitably increase year, by year and it is with this trade that the owners of timber lands, whether government or individuals, have to deal, as the denudation of the country will be affected by this trade in a greater ratio than by logging. It is well to bear in mind how much owners of private lands are interested in this question and that we have not to deal with governments alone.

The inroads pulp wood will make on our timber reserves will increase in an unknown ratio and if conducted in a judicious way will tend to the perpetuating of the trade in the same way the judicious logging of spruce has done. Of course, much of the country which is pulp-wood producing is not a desirable logging territory, and consequently the government of the Province of Quebec permit cutting of black spruce 7 inches at the stump.

The reproductive qualities of spruce will act forcibly as a saving clause against annihilation of our spruce forests, and this alone, in my opinion, makes the forest wealth of the Province of Quebec greater than that of our sister Province Ontario and of a far more enduring character.

I believe the interest of this country is to discourage, by legislation or otherwise, the cutting of trees for pulp wood under 7 inches in diameter at the stump and the shipping of pulp wood under 5 inches in diameter.

Increasing value of stumpage has a tendency to make people more conservative with their timber lands, as it pays to be so and the teachings of the forestry conventions and associations will be useless if they do not coincide with what the state and the individuals forming that state consider to be their interests.

Pulp wood affects all our interests directly or indirectly; it makes the article of paper which is used to spread the gospel this convention is preaching.

If this convention is the forerunner of a policy, as regards pulp wood producing the best financial results with a minimum of destruction, it will have justified its being.

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Province of Quebec—General statement of the manufacture of timber from government lands, 1900–1907.

[M feet rounded out to nearest thousand.]

	Report of—							
	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.
Area under license during year, square miles	51,194	48,818	62,953	62,730	69,979	67,494	69,226	68,142
Pine, etc.....M feet	223,696	235,044	.....	.....	.....	.....	.....	.....
White pine and other varieties saw-logs and boom timbers...M feet	.....	.....	51,364	199,079	175,073	192,518	202,234	195,947
Small pine logs and red pine logs, M feet	66,037	105,159	.....	.....	.....	.....	.....	.....
White pine, 11-inch and under, saw-logs.....M feet	.....	.....	17,867	60,565	69,287	75,005	68,724	87,719
Red pine sawlogs and boom timber, M feet	.....	.....	38,076	23,579	33,102	30,365	27,085	34,184
Boom timber.....M feet	49	259	.....	.....	.....	.....	.....	.....
Spruce, etc.....do	308,914	359,848	.....	.....	.....	.....	.....	.....
Spruce, hemlock, balsam, cypress, cedar, white birch, and poplar, saw logs, and boom timber M feet	.....	.....	319,866	288,068	377,220	431,273	364,832	362,726
White and red pine.....cubic feet	419,831	67,154	.....	.....	.....	.....	.....	.....
Spruce timber, pine.....do	.....	.....	635,621	506,768	950,451	259,360	(a)	(a)
Birch, etc., square.....do	222,481	37,675	.....	.....	.....	.....	.....	.....
Square timber, hard wood...do	.....	.....	129,004	56,647	150,919	419,647	198,615	280,278
Cedar, etc.....linear feet	233,300	186,700	.....	.....	.....	.....	.....	.....
Poles.....number	854	2,764	.....	.....	.....	.....	.....	.....
Posts.....do	2,177	7,756	.....	.....	1,255	22,111	64,992	10,870
Poles of all kinds of timber, linear feet	.....	.....	128,042	703,573	94,079	131,694	45,071	123,590
Firewood.....cords	3,549	1,917	4,423	3,040½	1,612½	2,473	2,653	1,535
Ties.....number	388,476	251,379	629,270	542,871	780,960	577,635	1,057,732	722,928
Pulp wood.....cords	6,926	2,938	260,194	202,633½	259,231	259,193½	324,109	236,401
Pickets.....number	9,335	5,015	6,886	7,319	9,174	2,902	3,085	1,064
Rails.....do	8,333	54	6,635	7,147	426	7,000	2,412	1,155
Shingles.....thousands	13,067	7,756	18,043	2,349½	2,424½	1,764	2,262	541
Shinglewood.....cords	36	32½	.....	.....	.....	.....	.....	.....
Hemlock bark.....do	17	400	12,364	436	23½	75	3	.....
Spool wood.....do	2,325	3,572	4,424	7,695½	11,710	6,229½	6,846	9,343
Lath wood.....do	.....	.....	.....	60	31	460	.....	250

(a) May include some square-timber pine, since classification changes to "square timber."

Fiscal years ending June 30. Compiled by the Forest Service, U. S. Department of Agriculture, from the annual reports of the commissioner of lands, forests, and fisheries for the Province of Quebec.

FOREST RESOURCES OF ONTARIO.

Extracts from the address of Mr. Aubrey White, deputy minister of lands and mines for the Province of Ontario, entitled "Forest Preservation in Canada," delivered before the Canadian Forestry Association at Ottawa, January 10, 1906:

It is a rather difficult matter to give a close estimate of the value of our forests of Ontario. I do not like to prophesy. * * * Now I am prepared, if my minister were to say to-morrow: We want to sell from ten to fifteen billion feet of white pine, to answer: Very well, sir, I think we can find that quantity for you without any difficulty. A mistaken idea is that our pine timber is exhausted, or is about to be exhausted in the near future, but that is not so. I have mentioned the fact that we could find ten to fifteen billion feet of pine on crown lands, and I want to say that I think there is anywhere between five and ten billion feet on lands under license which are being cut upon from season to season by our lumbermen.

* * * Our policy with respect to forest reserves is this: When we find that there is a large body of pine or other timber suitable for lumbering purposes, we create it into a forest reserve. We take it out of the market for settlement and declare it to be reserved so that we may deal with it in the most enlightened manner possible when we come to dispose of the timber. We have done that in respect to the great Temagami Forest Reserve, in which there is estimated to be anywhere between four and five billion feet of white pine. We have done the same thing in respect to the Mississaga Reserve, in which we believe there are three or four billion feet.

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In the eastern parts of the Province we have set apart as a forest reserve regions in which pine timber has been cut away, and recently we have set apart a very large reserve around that queen of lakes, Lake Nipigon, one of the most beautiful sheets of water in the whole Dominion of Canada. * * *

It is our intention to prevent the destruction of timber by fire or lumbering or anything of that kind until we make up our minds as to the proper policy to pursue. * * * (Pages 46, 48, Seventh Annual Report of the Canadian Forestry Association, 1906.)

* * * Ontario has now over 9,000,000 acres in forest reserves, and with her progressive forestry policy will not, I am sure, rest satisfied until at least 25,000,000 acres of forest land are set aside to form a magnificent permanent crown forest. (From address of E. G. Joly de Lotbinière, president of the Canadian Forestry Association, Ottawa, January 10, 1906, page 20 of the seventh annual report of the association.)

The following paragraphs are taken from a pamphlet entitled "Glimpses of Northeastern Canada," by Wm. T. Curran and Dr. H. P. Adams (pp. 10–11). The country was traveled over on a trip from Missinaiba, on the Canadian Pacific Railway, northeasterly over the old Missinaiba route to Moose Factory on Hudson Bay:

One of the resources, however, visible to all, was the immense growth of timber on the banks of the beautiful river (Missinaiba) over which the party was passing. This virgin forest, extending eastward and westward almost to the boundaries of the Province, contains, according to a recent reliable estimate, no less than 270,000,000 cords of pulp wood and 3,000,000,000 feet of white and red pine. This, viewed in the light of the rapidly advancing prices, represents enormous wealth. * * *

It has been computed that at the present market prices the sale of pulp wood alone in this great northern forest would defray the expense of building every mile of railway in Canada, roughly speaking 26,000 miles, including the Grand Trunk Pacific, at an estimated cost of $57,000 per mile, and would leave a balance almost sufficient to build two other transcontinental lines. These figures, combined with estimates of other Canadian forests, are convincing statements of the fabulous wealth stored up in the natural resources of Canada. * * * Millions of dollars' worth of timber have been sacrificed through the carelessness of campers and railroad companies in recent years. Especially may this be said of British Columbia, where extensive forests have been fire-swept from end to end.

The attention of the party was particularly drawn to the destructiveness of the forest fire, while passing through one on their way to Missinaiba from the east. This extended 75 miles and raged on either side of the railway, in many places burning ties and telegraph poles, and even bridges, which rendeded the road impassable for several days. * * *

In 1901 the agricultural and farm products of Canada were valued at $393,000,000; forest products at $51,000,000, and the minerals at $48,000,000. Yet such a wealth of timber is stored up in our forests and minerals in our lands that if turned to account the combined earnings of these would keep pace with the rapidly increasing earnings of the farm. * * *

Many people have contended that if the Canadian timber limits were properly directed, not only would the Canadians have an ample amount of timber to supply the demands of this rapidly growing country, but would hold the key to the paper industry of the world.

The following are extracts from the report of the survey and exploration of northern Ontario made in 1900, condensed and printed in Sessional Paper No. 143, 2–3 Edward VII, A. 1903, being an account of the resources of the country between Quebec and Winnipeg along the line of the Grand Trunk Pacific Railway, compiled by H. M. Ami, of the geological survey department, Ottawa:

At the last session of the legislature the sum of $40,000 was voted for that part of the province lying between the Canadian Pacific Ralway and James Bay. The knowledge possessed of this country, its topography and the character and extent of its resources in minerals, timber, and agricultural land, was of a general nature and was limited indeed. It was believed from official and other information that there were in this country extensive forests of woods suitable for the making of pulp and paper, and great areas of tillable land. Early in the summer ten exploration parties were organized and sent out by the department, each being assigned a different and distinct section, and while it was not anticipated or hoped that they would succeed in penetrating every corner

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of so extensive a region, yet it was expected that enough would be learned to show tha in the region north of the height of land dividing the James Bay from the St. Lawrence River waters there are great areas of fertile country and immense forests of spruce and pulp woods. * * * (P. 108.)

Pulp-wood forest.—A great pulp-wood forest has been located north of the height of land extending across the districts of Nipissing, Algoma, and Thunder Bay, with a depth in some places of 50 miles. The timber embraces all the common pulp woods, such as spruce, poplar, jack pine and balm of gilead, as well as tamarack and cedar along the banks of the streams. It is generally of good quality, usually thick on the ground and ranges in size up to 3 feet in diameter. In the district of Nipissing, south of the height of land, an extensive pine forest was explored and estimated to contain about 3,000,000,000 feet, b. m.

On the whole the information brought in by these exploration parties has been extremely gratifying, and the benefit to the province of conducting the exploration of so extensive a country has been abundantly demonstrated. * * * (P. 109.)

DISTRICT No. 1, N. ONTARIO.

(Abitibi Division of the Grand Trunk Pacific Railway.)

White pine scarce north of height of land.—There is little white pine timber north of the height of land, the trees being scattered and inferior in quality. Some small areas of red pine and some jack pine were met with, nearly all of these varieties being found south of Lake Abitibi. The best areas for pulp wood are on Low Bush and Circle rivers, with their tributaries, where it is estimated that an area of 180 square miles will yield an average of 7 cords to the acre, or about 800,000 cords. Along Little Abitibi River between Harris Lake and the boundary, the pulp wood is estimated at 750,000 cords. A belt reaching from Lower Abitibi Lake along the Abitibi River to Long Sault, 80 miles in length, will average 7 cords to the acre. There are also considerable pulp wood areas to the west and north of Lower Abitibi Lake. * * * (P. 110.)

DISTRICT No. 2, N. ONTARIO.

(Upper Moose or Mattagami division of the Grand Trunk Pacific Railway.)

. The prevailing timber is spruce and poplar, there being no pine or hard wood. The spruce, especially along the river banks, attains a size which renders it valuable for square timber, and the poplar is large and abundant, particularly on the Mattagami River. Special acres examined would yield 20 cords of spruce; other acres would cut 15 cords of spruce and 10 of poplar. Some of these, if all the timber growing on them were made into cordwood, would show 60 to 70 cords to the acre. Much of the tamarack seen was dead, as this tree appears frequently to die after having attained a growth of about 20 inches, and owing to the slight hold of its roots on the clay soil, it is liable to be blown down. * * * (P. 111.)

DISTRICT No. 4, N. ONTARIO.

(Same division on railway.)

The district is heavily timbered with spruce and tamarack, interspersed with other varieties. Owing to the density of growth, the spruce and tamarack are, for the most part, too small for any other commercial use than pulp wood, their diameter not being proportioned to the height they frequently attain. In some places, however, they are of larger dimensions. The quantity could not be estimated. The spruce will yield in some localities 40, 50, and in one instance 60 cords to the acre, being especially fine in the country along the Kabinakagami River. There is also a heavy growth of spruce along the Mattawishguani River, which will produce from 20 to 35 cords to the acre. The dense spruce and tamarack forests of the Moose River basin are of great value and cover an immense area. In the southern portion of the district there are some areas of red pine, but no large pine is found north of Lake Kabinakagami, the main portion of the territory explored being north of the pine limit. * * * (P. 113.)

DISTRICT No. 5, NORTH ONTARIO.

(Kabinakagami division of the Grand Trunk Pacific Railway.)

About one-third of the total area is timbered, making 640,000 acres, half of which will, it is estimated, yield good pulp wood or timber. The trees growing along the river banks have usually attained a fair size. Inland the timber is generally small and scrubby. The best timber district is between the Kawakaska River and Lake Eskeganaga, where extensive groves of spruce and tamarack up to 36 inches in diameter are found. The poplar, which grows everywhere along the river, is singularly free from blackheart, which renders it of value for pulp wood. * * * (P. 114.)

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DISTRICT No. 6, NORTH ONTARIO.

(Northerly portion of Kabinakagami division, above.)

There are great quantities of excellent pulp wood throughout the district, the principal varieties being spruce and jack pine. From the mouth of the Ombabika River to the Albany River the land, exclusive of brûlé, will yield 38 cords to the acre, or a total of 56,346,400 cords. The Ogoke River country will average 44 cords to the acre, making a total estimated output of 78,846,000 cords, being 135,194,400 cords in all from the territory tributary to these two water courses. * * * (P. 115.)

DISTRICT No. 7, NORTH ONTARIO.

(Long Lake division of the Grand Trunk Pacific Railway.)

There is a little timber of commercial value, and such tracts as are intrinsically valuable are practically unavailable on account of location, and the limited quantities of the different areas, except along Mud River, where large spruce and tamarack are found. * * * (P. 116.)

DISTRICT No. 8, N. ONTARIO.

(Nipigon Division, Grand Trunk Pacific Railway.)

The district is largely timbered with spruce and tamarack, but in many parts jack pine is predominant. In most sections where timber exists the yield is estimated at between 15 and 30 cords, taking all kinds. * * * (P. 117.)

DISTRICT No. 9, N. ONTARIO.

(Lake St. Joseph Division, Grand Trunk Pacific Railway.)

There is no pine except in isolated clumps. Spruce timber is thickly scattered throughout the territory, but much of it is too small to be marketable, though on the higher land it reaches a good size. Jack pine prevails toward the south and poplar in the northern portion of the district, but in low-lying areas the average size is small. If they were accessible, these tracts would furnish a large supply of pulp wood and timber. * * * (P. 117 f.)

DISTRICT No. 10, N. ONTARIO.

(Lac Seul and Lake of the Woods Division of the Grand Trunk Pacific Railway.)

The timber on the English River and its tributaries is exceedingly valuable, especially the spruce and poplar, which are sufficiently large in diameter to yield many millions of feet of lumber in addition to the vast quantity of smaller timber suitable for pulp wood. The logs can be driven to the mouth of the Wabigoon River for manufacture. Large quantities of spruce and poplar are available in the Wabigoon River region, where there are about 3,500,000 feet of red and white pine, which could be taken to the mouth of Canyon River. The timber on the banks of the Winnipeg River and its tributaries, including the waters of the Black Sturgeon, Swan, and Sand Lake regions, comprises a large quantity of good poplar and spruce and some red pine. (P. 118.)

Article in the Toronto Globe of February 29, 1908, entitled "Ontario's progress toward a rational forestry system," by Thomas Southworth, director of colonization for Ontario, formerly clerk of forestry for Ontario:

Such progress as has been made in Ontario toward a rational system of handling our immense resources in forest wealth has not come as the result of pressure upon our legislators by a well-informed public opinion. On the contrary, the slight advance we have made has usually preceded and led public opinion on this important phase of our national welfare.

Even the southern and thickly settled part of the Province, where public opinion has the greatest effect upon legislation, the battle of the pioneer with the trees that were obstacles to the growing of crops required for his sustenance is so recent that it has been difficult for the "man in the street" to realize that there could be any danger to the public weal from a scarcity of forest cover in this "wooden country."

To only a comparatively few, who had the time and inclination to apply the lessons of history in other lands to conditions here, was it apparent that the rapidly lessening percentage of woodlands in our southern counties created a menace to the

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State. These people, however, were able to impress the legislative authorities with the necessity of doing something, and in 1883 the provincial legislature took action by appointing an officer, termed "clerk of forestry," whose work under the minister of agriculture was in the direction of informing the public as to the dangers likely to arise from cutting away the forests too thoroughly.

By means of pamphlets, letters to the press, and in other ways this campaign of education was carried on till 1893, when the last report of this officer was issued. The only legislation bearing on the subject during this period was the passage of the "Ontario tree-planting act," by the terms of which municipalities were authorized to pay a bonus of 25 cents each for trees planted along highways or farm boundaries, half of the amount so paid to be refunded to the municipality by the provincial treasury. The sum of $50,000 was set aside by the Province for the bonus to be paid under the act.

The planting of shade trees, however meritorious and advisable from an æsthetic standpoint, can scarcely be designated as forestry, and as the act was taken advantage of to a very limited extent (only about $5,000 having been paid out in ten years) the act was repealed in 1896.

In 1885 an important step in advance was made by the department of crown lands in the way of a fire patrol or fire ranging, as it is termed in Ontario. Anything that tends to lessen forest destruction is a practical forestry measure, and the Ontario fire-ranging system has been reasonably successful in lessening the loss by forest fires. In the year mentioned a circular was sent out to the holders of timber licenses intimating that if they would select men to patrol or "range" the "limits" they held under license during the season of danger from forest fires the department would bear half the expense. At first but very few of the lumbermen holding limits had confidence enough in the efficacy of the ranging system to take advantage of the offer of the government, but gradually the work done by the rangers in preventing fires—little can be done in extinguishing them—came to be generally recognized, and to-day practically all the crown lands under license are patrolled by fire rangers during the summer.

Much remains to be done to bring the fire-ranging system up to the state of efficiency the expenditure upon it should secure, but there is no doubt whatever that many incipient fires have been discovered and put out by the rangers, while their mere presence in the forest has made tourists, prospectors, and others more careful. The net gain to the Province from the fire-ranging system has been considerable.

In 1895 the forestry office was transferred from the department of agriculture to the department of crown lands, and the forestry officer was directed to make a study of the situation on the lands of the Crown to ascertain what was best to be done in the way of reforesting the cut and burned-over areas of crown lands not suited for farming, as well as to suggest improvements in the handling of the timber on the crown domain.

Without any particular attention being devoted to the subject, it had come to be generally conceded that where a crop of our most valuable tree—the white pine—had been removed it was invariably succeeded by a crop of some other and less valuable variety, and that if we were to have successive crops of pine timber artificial planting would have to be resorted to. The large initial expense this would have entailed at that time over the enormous areas in question rendered this course out of the question. The forestry report for 1896, however, recorded the fact that over a large part of these burned areas white pine was growing vigorously among the birch and poplar that had first sprung up after the fire, and that these areas only required to be protected from fire and the settler's plow to insure that in time a new crop of pine would replace the one cut away of greater money value than the original.

The same report also dwelt at some length on the unwise policy previously followed of opening for agricultural settlement lands quite unsuited for the purpose, but which, in the interest of the State and of the individual settlers unfortunate enough to have located upon them, should have been kept in forest for the growing of tree crops.

It was accordingly recommended that the province adopt a policy of the separation of two classes of land, only land known to be suitable for agriculture to be opened for settlement, the other lands of the Crown to be placed in permanent forest reserves and kept for growing timber.

In 1898 a royal commission was appointed to consider the subject. This commission, which included in its membership two prominent lumbermen, made similar recommendations, and in 1899 the legislature passed the most important forestry legislation so far enacted in the "Act to create forest reserves."

Under this act the lieutenant-governor in council is given power to withdraw forever from agricultural settlement such areas of crown lands as may be considered more profitable for tree-growing purposes. The first reserve created under the act was a small one of about 80,000 acres in eastern Ontario, a territory that had been for

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many years under license, had been lumbered and burned over, and on which a vigorous crop of young pine and other trees was growing. The license holders relinquished the license for a small consideration, reserving the right to cut such mature timber as was upon it for a term of five years. It is worthy of note that at the expiration of five years the license holders were very desirous of a renewal of their license owing to the increasing value of the young timber.

Another small reserve of about 45,000 acres of similar cut-over territory, but not under license, on the north shore of Lake Superior was created in 1901.

The purpose of the forest-reserves act was to create permanent crown forests for purposes of public revenues and timber supply, as well as the great incidental advantages in the way of water protection. In arranging for an extension of these reserves to take in the nonagricultural areas still in the Crown the fact became obvious that our system of disposing of our timber wealth, while better than the plan followed in the United States, where the land and the timber upon it were sold in fee simple to individuals, gave our licensees or limit holders practically a perpetual lease of the territory in their license, except where the lands in question were desirable for agricultural settlement.

In consequence, very large areas of crown lands that are clearly suitable only for forest lands are still unclassified, while the forest reserves so far created are confined to lands that have not yet been licensed.

Over 10,000,000 acres have now been placed in forest reserves, and it is fortunate that these reserves contain the major part of the pine timber yet unsold. No careful estimate has yet been made, but it is probably quite within the mark to say that the present crown forest reserves contain fully 10,000,000,000 feet, board measure, of pine timber.

The reserves so far created, their areas, and the dates of their creation are as follows:

	Acres.
April, 1898, eastern reserve	80,000
February 10, 1900, Sibley reserve	45,000
January 11, 1901, Temagami reserve	1,408,000
December 16, 1903, western Temagami reserve	2,368,000
January 24, 1904, Mississaga reserve	1,866,240
June 7, 1905, Nepigon reserve	4,578,560
November 17, 1905, Nepigon addition	91,520
Total	10,437,320

When all the land unsuited for general farming or that from its location at the headwaters of important streams should be kept forest covered is placed in reserves, Ontario will have a permanent forest of forty to fifty million acres, and when this immense territory is administered under a rational system of forestry this Province will be an important factor in the world's timber supply. That the nonagricultural lands now under license will some time be included in the reserves is probable, for it should be quite possible to reach an agreement with the holders of these areas to this end.

The creation of forest reserves having forced the undesirable features of the then system of selling timber upon the notice of the authorities, a change was made in 1899, when some timber berths or limits were sold with the express condition that the license would not be renewed beyond a period of ten years. It was soon recognized, however, that this might prove too short a period for the lumberman to remove his timber profitably, and in subsequent sales the time was extended to fifteen years.

While this overcame the difficulty of the question of tenure, it was not conducive to the forestry interests of the state, but rather to destructive lumbering methods to an even greater extent than the former system of indefinite or perpetual tenure. When the lumberman has paid a large sum of money in advance for the timber on his limit, and has only a fixed term of years to remove it, he is not likely to leave much merchantable timber on it when he abandons it, nor be particular about the danger of fire when his own timber has been cut. In buying the limit he has based his price on the estimated quantity of merchantable timber, the greater part of which is paid for in advance. The stumpage dues, to be paid as the timber is cut, usually represent but a small part of the stumpage value, consequently there is an incentive to cut timber too small to be taken into account in the original estimate. Moreover, as the timber scale used to measure this timber only accounts for part of the actual contents of small logs, the lumberman would be a poor business man if he did not cut every stick of pine that was not too small to repay the cost of the labor expended in taking it out.

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In 1905 a further advance toward rational forestry methods was made when a small block of timber was sold at auction on the basis of a specified rate per thousand feet of the timber actually cut. It was feared at the time that lumbermen would hesitate to buy on these terms, but the sale was so successful and the price obtained for the timber so high that this method of sale has been followed in subsequent sales.

Under the old "bonus" system of sale practically no cutting regulations were exacted. There was no limit to the size of the tree or sapling that might be cut, and, as has been pointed out, this would naturally permit very destructive methods. In the latest sale in 1907, by which the timber was sold at a high price per thousand feet as cut, cutting regulations are provided for, but it is to be feared that they are such as to be unnecessary and from a forestry standpoint ineffective. These regulations fix a diameter limit of 10 inches, below which no tree may be cut, but it is very doubtful if the successful bidder could be induced to cut trees so small. It would not pay him to do so. On the other hand, there might be a condition of affairs where trees of this or even a smaller diameter, as well as larger but defective trees, should be removed to assist the growth of the new crop, and these cutting regulations might well provide for the removal of trees in such cases. To the same end, the work of the fire rangers might be supplemented by requiring the lumbermen to burn the brush after cutting operations, as is now being done in the national forests of the United States.

All this will no doubt come in time.

Another important step in advance has recently been taken in the establishment of a college of forestry in connection with the Provincial University. We are slowly creating a permanent national forest. This forest to attain its maximum production and greatest usefulness must be managed by practical and scientifically trained men, and it is important that these men should receive their training under conditions such as they will be called upon to meet in actual work. There is reason to expect that there will be work for the graduates of our forestry college in our provincial forest when they are competent to undertake it.

At the beginning of this article reference was made to the dangerously denuded character of the southern counties of the Province. The first action taken to restore the proper balance of wooded to cleared land in this part of Ontario was taken in 1904 by the department of agriculture, when forest tree nurseries were established at the Guelph Agricultural College to furnish seedling trees to farmers who would plant and care for them under the direction of the forester of the department.

Nurseries have been established on the Guelph farm and at Homewood, not far from Guelph. The success of this work naturally depends on the willingness of farmers throughout the Province to plant part of their farms with trees supplied by the department. These seedling trees are supplied free to such farmers as will undertake to plant them under proper conditions, and the forester or his assistant is expected to visit the farmer, examine his lot and submit a planting plan. Only about 200,000 trees were planted during 1907 in this way, while much more planting stock could have been supplied from the nurseries.

In order to meet the needs of farmers who might apply by having seedling trees of a suitable size for planting without waiting to grow them from the seed, the department has purchased a considerable number of 1-year-old trees in Germany grown from Canadian seed.

Unless the farmers more generally appreciate the advantage of having the waste places on their farms planted up to trees rather than left waste than has been the case so far, it will be a long time before the proper proportion of wooded to cleared land in the older parts of the Province is secured. If every farmer planted the land on his farm which is more suitable for trees than for other crops, there would undoubtedly be restored the proper proportion of woodland, but in case they fail to do this, there are considerable areas of waste land in the way of rough and sandy tracts which might be utilized for tree planting by the General Government or by the municipalities to advantage.

It has been stated by the forester of the department of agriculture that there exists in old Ontario south of Muskoka a total area of some 400 square miles of non-agricultural land. This territory does not take into account small parcels of waste land on the individual farm, but consists of definite, segregated areas ranging in size from a few thousand acres up to 50 square miles in extent. This land in some cases has been cleared for agricultural purposes, and afterwards abandoned; in other cases the timber has been cleared off, the character of the soil recognized as unfit for cultivation, and no attempt made to use it for farming purposes.

In many cases these lands are a menace to surrounding farm lands owing to blow-sand formations, and a burden to the local municipality owing to their unorganized condition. These areas under proper management could be reforested and made to produce a revenue, assist in assuring a future wood supply for local demands, and insure protection to headwaters of small streams.

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The history of most nations indicates that very little can be expected in a forestry way from private individuals, even under pretty stringent state control, and it has been found more effective for the State or the community to undertake the work, particularly if it is done on a large scale.

However, the work of the forestry branch of the department of agriculture is very important, not only in the way of growing trees for planting in old Ontario, but the forester is also a lecturer in forestry at the Guelph Agricultural College. By this means the graduates of the college are given a practical knowledge of the best way in which to treat the wood lot that occurs on nearly all the farms in the Province, much neglected in most cases, but generally productive of revenue and of value to the community.

To sum up, what I consider to be the most important steps in advance made in recent years are, in chronological order, the adoption of the fire-ranging system in 1885; the passage of the forest reserves act in 1899; the establishment of tree nurseries and lectures in forestry at the Guelph Agricultural College in 1904; the adoption of the plan of selling timber at a price per thousand feet on the stump in 1906; and the establishment of a forestry college in 1907.

There have yet to be done the examination and mapping of the forest reserves; the application of scientific forestry practice in their management; the gradual inclusion in forest reserves of all the nonagricultural lands of the Province still held by the Crown; and more extensive reforestation in the settled and denuded areas in the southern part of the Province.

The Territory of Ugava.

During the Parliamentary session of 1906–7 a select committee of the Senate of Canada took evidence in an attempt to gain some knowledge of the resources of the unexplored regions of the Dominion. The evidence was transposed into direct narration, edited by Capt. Ernest J. Chambers, Gentleman Usher of the Black Rod, and published in 1907, under the title "Canada's Fertile Northland." Exracts have been taken ffom this valuable collection:

[Evidence of A. P. Low, director of the geological survey of Canada.]

The territory of Ungava is separated from the northern portion of the Province of Quebec by a line drawn from the mouth of the East Main River on James Bay eastwardly up the main branch of that river to its headwaters in Patamisk Lake near the fifty-third degree of north latitude, and from there by an east and west line which extends to the upper waters of the Ashuanipi branch of the Hamilton River, and that river is then followed to its mouth at the head of Hamilton Inlet. The area of the Ungava district is about 250,000 square miles. (P. 11.)

THE WOODED AREAS.

The climate is fairly cold even in the summer time, and the tree line extends from just a few miles north of Richmond Gulf, on the Hudson Bay side, across to the head of Ungava Bay and crosses the Koksoak River about 10 miles from its mouth. There the trees are only small spruce and tamarack. A fairly high range of hills extends southward from Cape Chidley along the Atlantic coast from 3,000 to 6,000 feet in elevation, and they are wooded. The tree line south of Ungava Bay is regular as far as the mouth of the George River, and there, on account of the high and being reached, it bends to the south, and a barren land occurs to the eastward, where no trees are found. The bays on the Atlantic coast are wooded at their heads, and after reaching about latitude 56° the trees begin to extend to the outer shore line. The outer islands are not wooded, but when Hamilton Inlet is reached, in latitude 54°, the land is fairly well wooded to the coast line, and in the country around Hamilton Inlet there was also a fairly good growth of timber in former years, but a great part of it has been destroyed by fire; so that the timber now on the Atlantic coast is practically confined to the heads of the bays. This timber comprises white and black spruce, tamarack, and a few white birch, and while there are still some fairly large trees there, most of them have gone. The large trees are now to be found in small areas in some of the bays.

Besides Hamilton Inlet there are other areas in northern Quebec, in Newfoundland territory, and at the head of Cartwright Bay. In these areas there are fairly large trees which would measure up to 3 feet in diameter.

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There was excellent spruce there, but the fishermen cut a lot of it for firewood and destroyed much more by carelessness in starting fires. Toward the head of Hamilton Inlet there is some excellent timber suitable for schooner masts. The big trees are fairly old, and there are clumps here and there along the rivers. Upon the table-land there is practically only black spruce and tamarack, and they are small. The good timber is only to be found in the lower valleys. (P. 12.)

UNGAVA TIMBER.

The principal forest areas of Labrador peninsula are in the Province of Quebec. Of course going north the trees get smaller and more ragged, and they have branches almost down to the ground. In this upper land they grow in open glades, and the trunks are not clear and clean, and consequently do not make good logs. Some of the timber would do for pulp very well, but in the Ungava territory the trees are confined almost wholly to the river valleys and the edges of the lakes, and there is a large area of the country that is barren ground.

The northern limit of the timber line extends from the mouth of the Nastapoka River to the mouth of the Koksoak River on Ungava Bay. To the south of that there is a lot of country that is not timbered at all except in the river valleys and around the lakes, the upper lands being barren. These barren lands practically extend down to the boundary of Quebec, so that in Ungava itself, inside the tree limit, witness did think half the country was covered with timber, but he is not aware that any approximate estimate has ever been made by the government as to this.

COMMERCIAL VALUE OF THE TIMBER.

The only timber of commercial value that will be found there is on the rivers flowing into James Bay, and perhaps as far north as the Great Whale River. The timber extends inland from James Bay as far as the lakes in the center of the peninsula and between 100 and 200 miles along James Bay. There are rivers where the timber could be floated—no doubt about that—and it is along the rivers the timber is found.

To reach these forest districts and make them of commercial value, the best way would be via Hudson Bay and the rivers flowing into it, for the districts on the bay side. In the rivers flowing north there are practically no timber limits. There is a fairly large timber industry at Hamilton Inlet, but none inland, and there is some good-sized timber up the Hamilton River. As to what the cut was last year witness had no idea. The country is fairly well forested up to the foot of Hudson Bay with spruce, tamarack, white birch, banksian pine, and aspen. (P. 13.)

[Evidence of Hon. William Cameron Edwards, member of the senate, lumber merchant, and manufacturer.]

Back some distance from the Labrador coast and in the immediate valleys of all the streams in that district the timber is large; also in the district around Hamilton Inlet, around Melville Bay, up the Hamilton River in the valleys of all the rivers running into Hamilton Inlet, and also in the valleys of the rivers extending from Chateau Bay to the head of the island of Anticosti.

The timber within these areas is large and good, but the strips do not extend back from the streams for any distance. From half a mile to a mile on each side of the streams would be the extreme.

As to the timber on the mountains about Hamilton Inlet, Senator Edwards was disposed to think Mr. Low had rather underestimated its quality. On these mountains there is a vast quantity of perfect timber. The objection to it for Senator Edwards's purposes was that it is scrubby. That is the only objection, but the time will come, if that timber is preserved, when it will be very valuable. Senator Edwards remarked that he was one of those who hold that the Province of Quebec in this Hamilton River country has one of the best timber districts on the North American continent if only preserved, but burning is going on to a tremendous extent—the work of the few settlers that are there. Valuable areas of timber are being burned up. Settlers simply light fires in the summer time to dry the timber for their winter use. These fires extend over vast areas, and enormous portions of the country have been burned. The Senator explained that he had taken 500 miles of limits there and allowed them to expire, simply because of the regulations.

On the mountains around Hamilton Inlet there is an enormous quantity of pulp wood. Mr. Edwards said he did not know any place where there is a greater area of pulp wood than there is on the Hamilton Inlet, around Melville Bay, and for a certain distance into the interior. On the immediate coast of the Atlantic, from Hamilton Inlet to the St. Lawrence, there is no timber.

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As to the character of the timber around Hamilton Inlet and the streams running into it, it is disputed whether the first ships' masts cut on the North American continent were cut there or at some point in Nova Scotia.

His information was that there was no timber in Ungava north of Hamilton Inlet. (Pp. 20, 21.)

TIMBER SUPPLY—NORTHWEST TERRITORY.

The information in regard to the timber resources of the Northwest Territory is largely found in a pamphlet entitled "Canada's Fertile Northland" (above referred to). This pamphlet contains evidence heard before a select committee of the senate of Canada during the parliamentary session of 1906–1907, which is found chiefly in Section B, on "The resources of the region west of Hudson Bay, east of the Rocky Mountains, and north of the Saskatchewan watershed."

[From the statement of A. P. Low, Director of the Geological Survey.]

In his evidence as to the resources of the more southern sections of Keewatin which he had explored, namely, between Norway House and Hudson Bay, Mr. Low stated that the forest, as in a great many other parts of Canada, had been largely destroyed by fire, but around some of the large lakes and on their islands and other places a fair growth of timber is found in that region with white and black spruce, pine, aspen poplar, and white birch of 18 inches diameter. The trees are fairly clean, and a great many of them would probably make two or three logs, so that what remains of the timber there is fairly decent and good, except on the low swamp land, where the growth is confined to black spruce and tamarack of no great size.

There is no timber at Fort Churchill, that being practically on the limit of the forest area.

Throughout the more southern region described by Mr. Low there is a good deal of wood that could be used in the manufacture of pulp.

All of the rivers in the region have water powers. (P. 24.)

Mr. Elihu Stewart, superintendent of forestry for the Dominion government, reported on a trip made from Athabasca Landing by way of the Athabasca, Slave, and Mackenzie rivers, to Fort McPherson, and thence by way of the Bell and Porcupine rivers to Fort Yukon, up the Yukon to White Horse, and thence by rail and steamer to Vancouver.

After returning from his trip in 1902, Mr. Stewart wrote his annual report to the department, and he read a few sentences therein written, as he had prepared his report when the matter was fresh in his memory.

"The principal tree between the Rocky Mountains and the plains is the spruce, mostly the white spruce, and from its position near the prairie there is no doubt that it will be more sought after to meet the increasing demands from that quarter.

"The country along the upper waters north of the Saskatchewan and the Athabasca and Peace rivers is partly prairie and partly wood. The varieties of timber are principally aspen and balsam poplar, the former predominating, and white spruce. The poplars as we go north seem to increase in size and height, and as we approach Lesser Slave Lake and between this lake and the crossing of the Peace River. Below the junction of the Smoky they grow very clean and straight trees, not over a foot or 14 inches, but reaching a height of 17 or 18 feet, making excellent building timber, as well as fencing and fuel. In some parts there are stretches of good spruce well adapted for lumbering purposes. There has so far been but little destruction from fire in this quarter. The land is mostly level, soil excellent, and if the summer frosts do not prevent it, the country will begin soon to settle up and there will be an ample supply of timber for local uses, if not for export to the adjoining prairie regions."

Mr. Stewart followed the reading of the preceding extract from his report with the remark:

"I never saw as fine poplar as I saw there. A considerable number of poplars were over a foot, but a foot would be a fair average. I have seen poplar in all parts of the prairie country, but never saw any growing up as straight. The wheat from Vermilion, it is said, took the first prize at the Chicago exhibition."

The Hon. Mr. Lougheed added: "Yes; I saw it there myself."

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Mr. Stewart explained that spruce suitable for commercial purposes grows to the Arctic Sea. He was astonished to find that the limit of tree growth extended as far north as it does. He thought it extended probably ten degrees farther north in this district than in Labrador. The different kinds of trees that we have in the Mackenzie basin include white spruce, black spruce, the larch or tamarack, which is found as far north as the spruce, the jack pine, and the balsam. Mr. Stewart did not see any balsam in the Arctic Circle; aspen, white poplar, balm of Gilead, and birch are all found down as far as Fort McPherson. The natives make their canoes out of birch bark at Fort McPherson. The size of the timber becomes less as you get toward the north. There is timber growing near the junctions of the Peace and Slave rivers probably 14 inches in diameter. Below Fort Good Hope the timber is smaller. Some of it has been made into flooring and lumber is made from the timber there. There is a large supply of spruce suitable for pulp.

As to the extent of the forests, Mr. Stewart remarked that wherever there was a stream there would be a belt of timber. (p. 47.)

Evidence of Mr. Richard George McConnell, geologist in the Geological Survey:

The timber through all this country is confined to large spruce. White spruce is the main tree all through that country. You get spruce from a few inches up to 2 feet through all the way along the Mackenzie, on the flats, and on nearly all the tributary streams. Mr. McConnell found spruce at the delta of the Mackenzie over 2 feet through. Of course only an occasional one grows that size. They average 10 to 15 inches. Along the Liard there are good bunches of timber, and it is the same with all these other tributary streams. Once you get away from the flats the timber is sparse and the trees are small. You get small black spruce on the muskegs. The timber is simply on the flats and extends back 2 or 3 miles from the river. That is not solidly timbered on either side of the river. The poplar does not grow to a large tree as it does down here. It runs about 3 to 6 inches through. The rough-bark poplar grows up to a foot or more.

In the southern part of that region you find balsam fir. There is balsam fir in the Yukon country. Witness did not remember how far north it runs. You get the jack pine, the same sort of pine that grows on the prairie, in places. It grows as far north as Fort Good Hope. You get it in patches on the sandy flats. It does not grow very large, but some of the trees would be big enough for railway ties.

Asked if there are large flats of black spruce, Mr. McConnell explained that the country is not forest continually like it is here, but most of the country is open wood. Nearly all the muskegs and around the muskegs is covered with black spruce.

The Mackenzie has no rapids suitable for water powers, but the streams flowing into it must have. There are groves of timber patches along the river all the way to the mouth.

Taking the Mackenzie as a whole, Mr. McConnell considers that there is a good quantity of timber, a lot of which would be fit for manufacturing into lumber. On almost every flat there is a grove. Some timber has been destroyed by fire. Fires have run in places, but the timber is not badly burned. (P. 55.)

Mr. Donaldson B. Dowling, of the Geological Survey, reported that his experience was based on a trip from Lake Athabasca, through Reindeer Lake, and back to Churchill River; thence from northern Saskatchewan to Hudson Bay, and later from Fort à la Corne down the Saskatchewan through to the Burntwood River, touching the Churchill again below where he was before; and by a trip down the James Bay and through the country on the western corner of the bay.

Along the river valleys the trees are always well grown, but back from the river on the plateaus you get into muskegs and small timber that kill the soil simply because it is not well drained. The muskegs there are not very deep.

Around Churchill, Mr. Dowling had seen timber down to the mountain. The timber does not grow quite so large there. There is a strip all along the front of the bay which has no timber. Back in the interior there is timber. The vegetation around the bay is very good. You would not know that you were so far north.

There is probably a good quantity of pulp wood in Grand Rapids, on Lake Winnipeg and on the Saskatchewan River, but that country is mixed. It is spruce and poplar, and if you go north from the Moose Lake country you get away from the poplar and you get into the spruce country pure and simple—spruce and jack pine.

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There is lots of that and it is fairly good for pulp wood, but I do not think it will ever grow to timber. The jack pine might be used for ties, but it is not suited for it. (P. 58 f.)

Mr. Owen O'Sullivan, of the Geological Survey, reported from experience on the west coast of James Bay, and by a trip up the River Kapiscau to the headwaters. Most of this country is swampy. It is principally seat and wet spagnol. There is a block of small spruce here and there, isolated.

In his trip in 1906, the only timber Mr. O'Sullivan saw was at Split Lake—spruce, poplar, white birch, from 4 to 18 inches in diameter. The country between there and Big Lake is of course a swampy country—black spruce swamp, small spruce averaging 4 and 6 inches in diameter. It would make good pulp wood, and then around Wabishkok you get the same birch and white spruce, and so on. They are a little larger, as large as 6 to 18 inches in some places. You get isolated groves like that. The black spruce would average, in the nice terraces and level clay slopes from the lake, to about 18 inches. They grow that size and more. North of that, between there and the tree limit or the open, barren ground, the country has been run over by fire, about forty years ago, and probably there was another fire which occurred about five years ago, so there are no trees. The moment that you leave, going down the Little Churchill there are no trees to be seen on the heights, except on the valleys of the river you get bunches of spruce and poplar which escaped the fire. These spruce and poplars which are in the valleys are sometimes 20 inches in diameter.

The cottonwood grows to about 14 inches. It is tall and very healthy looking. The spruce trees grow pretty long, and quite a number of saw logs could be taken out of each tree. The soil is pretty good, but the area is small. Once you leave the Big Lake, all the way down there is no timber at all. In the valleys of all the streams there is timber, bunches of spruce and tamarack.

At the Big Churchill the clay hills are mostly covered with moss. It has been burned over, and you find good, large spruce in the valleys of the Little Churchill River away up to about 18 or 20 inches in diameter. But they are very few. They are all very healthy looking trees. In the small scrub tree you get the limbs down to about 3 feet from the ground.

The northern limit of spruce is 56.47 latitude north. Beyond that you get into the barren lands. (P. 63.)

Mr. Wm. McInnis, geologist, stated that he had been employed in the Geological Survey since 1883. The regions of the west, with which he is familiar (first) the district between the Saskatchewan and Split Lake on the Nelson, and (second) the region lying between the west coast of Hudson Bay and the northern part of Ontario, Lake Nipegon and Lake of the Woods.

The western part of Keewatin has evidently from all accounts been a country of good timber generally, but unfortunately it has been almost all burned over, and burned over a good many times, so that at the present time the only areas of good timber that the witness knew of are the area north of Moose Lake, the area west of Clearwater Lake, and the area between Cormorant and Yarnstone lakes. He made cross sections in that country several times, and he found white spruce, and the largest tree he found was 30 inches in diameter. That was the largest tree. He would say most of those trees make three 14-foot logs because they are growing thickly, and it is a regular white spruce timber limit. There are a great many from 10 inches up to 23 inches. That is an area about 6 miles long by 2 or 3 wide, and going through that there are areas of swamp. He cross sectioned through it and would come to a quarter of a mile of good trees, and then perhaps half a mile of swamp land with black spruce, and half a mile of good trees right across. North of that point there are only a few isolated areas of timber that had escaped the fire. On the islands and lakes there are pretty good timbers, and on some little peninsulas that are nearly cut off; otherwise it has all been burned .

At Nelson House, in order to do some building, they had to go up the river some ten miles and pick out a log here and there before they got enough to put up a house. There is a great deal of timber that would be fit for pulp wood. The black spruce which grows to 8, 9, and 10 inches, covers practically the whole ground. Where it has had thirty or forty years' growth it gets up 5 or 6 inches through, and it is a very peculiar timber. The yearly growth is very small. It is packed very closely to-

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gether and it would make excellent timber. It would yield more fiber than the average stock.

There have been a great many fires up there. Timber of large enough size to saw into deals and boards, such as are used in building, is confined to within a very few miles. The missionary priests at Albany go to church at the mouth of the Winisk, and the church is constructed from lumber that they sawed from trees cut a few miles up the river. In the swampy partions, of course, it is entirely black spruce and tamarack, and generally small size, 6 to 8 inches. A very great deal of it would make pulp wood, and on the drier ridges of bowlders and gravel there are white birch and poplar, but these are not of any commercial value. The northern limit of white pine is found just about the Albany River. The northern limit of spruce is reached at Winisk Lake. (Pp. 67, 68.

Mr. Henry A. Conroy, of the department of Indian affairs, stated that he had been annually traveling through this northern country for about eight or nine years. He starts in along the Athabaska River from Athabaska Landing, which is about 100 miles north from Edmonton, and goes north along this river to the junction of the Little Slave River, visiting all the Indian reservations in the treaty district.

Down the Athabaska River from Athabaska Landing to the junction of the Little Slave the banks of the river are fringed with timber, probably from half a mile to 2 miles wide. Witness did not think it is more. The spruce is fairly large in some districts—fit for saw logs, and mostly all fit for ties and small building timber. Some of it was very large spruce for that country, 3 feet across the stump. There is an Indian reserve along the Little Slave River, and a portion of that has good timber. The Indians have the finest piece of timber on the Lesser Slave Lake as a reservation. The spruce is large, and there is a species of poplar, what they call the black-bark poplar, which grows very large there. Witness had seen it from 3 to 4 feet across the stump. It grows very large, and sometimes 50 to 60 feet high on this low land. The north side of Lesser Slave Lake is covered with quite a heavy second growth of poplar, some spruce, but not very much, and the poplar is not very big, probably from 9 to 12 inches through, and grows very slim and tall. It is very long, just a little bunch of limbs at the end of it, and the trees grow close together all along the north side of Lesser Slave Lake.

When you get back about halfway between Lesser Slave and Whitefish Lake, you strike a timber belt running from that to Whitefish Lake, and there is some spruce and a great deal of poplar. Witness had seen spruce logs there 2 feet through, a great many of them in that section of country.

After leaving the Prairie River Valley to cross over to the Little Smoky, you do not meet any timber until you come toward the Little Smoky River. About 9 miles in width from the Smoky there is a timber belt probably 25 or 30 miles long, from information witness got from the Indians, and 8 or 9 miles wide, going through it, mostly spruce and black-bark poplar.

The country lying due west of Sturgeon Lake, between that and the Big Smoky, is, some parts of it, muskeg, but there is a lot of very good land too and some very good timber, and along the banks of the Big Smoky there is some excellent spruce.

Mr. Conroy never was there, but the Indians told him that on the east side of the Smoky there is quite a big limit of timber. Most of it is spruce, and in the low land tamarack, so that there is quite an area of timber along the Big Smoky.

After leaving the Puskopee prairie going to the west there is no more open country, but there is a timber country right across to the Pine River. The banks of the Pine are very high, higher than the banks of the Smoky. Witness thought they were about as high as the Peace. They commenced away back, and the timber all along on the steep banks is very high. The belt of trees appeared to him to be wider along there than anywhere else, between 6 and 7 miles wide in the part he went through himself. It runs right through a bald hill where it enters the Peace.

The south side has the trees. On the south side of St. Johns, in British Columbia, between that and the Peace, the country is not much good. It is a very high country. There is some timber, but not of any economic use—mere brush. On the sides of the banks it might be of some use.

Witness had been 13 or 14 miles north from Dunvegan on the Peace, and found timber growing pretty large. There are groves in that country through which a man could drive a mowing machine, the trees are so far apart. One would think they had been planted there.

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Witness had never been in the country south of Lake Athabaska, but as far as he could see it looked to be well timbered. He had been east of Lake Athabaska as far as Fort a la Corne. All along the river there is good timber, down the Great Slave River.

On the lower levels of the Athabaska, clean through to Athabaska Lake, there is heavy timber all the way along. Witness does not know what is behind the timber belt but believes it is pretty muskeggy. That is what the Indians told him. He had been up the river by boat every year for eight years. Taking the country as a whole, there is quite a lot of marketable timber. All the rivers and lakes could produce good timber There are millions of cords of spruce for pulp wood.

There is a beautiful water power on the Peace River, and there are 90 miles of rapids on the Athabaska from Fort McMurray to Pelican portage. There is all the water power that could be desired—tremendous falls. (Pp. 75, 76.

Mr. Jos. B. Tyrrell, mining engineer, of the city of Toronto, reported on his experience north of the Saskatchewan from Edmonton and the Athabaska River to Hudson Bay:

In speaking of the forests of the country north of the Saskatchewan, the witness explained he would have to divide the country in very much the same belts as for agriculture, because agriculture and forests were very closely connected. Agriculture has to be very much governed by the forest growth. Far in the north there is a tract of country he had already outlined that has no trees on it; then a belt of country from 100 to 200 miles in width with small banksian pine, spruce, larch, poplar, and some white birch. He would not consider any of those woods valuable for timber purposes, except locally. They would serve for pulp wood, but the growth is not thick. Still, in a considerable area there might, of course, be a large quantity of timber for pulp wood. In that belt the trees would average probably 6 inches. Occasionally you would find some a good deal larger. The poplar grows on the drier lands. It is not an indication of good land in an extremely northern country. It indicates a dry sandy soil, but further south it indicates excellent soil. The country to the south of that, the thickly wooded belt, contains a large quantity of timber, chiefly white spruce, trees up to 18 inches in diameter. It is a wooded country, with trees from 12 to 18 inches in diameter, tall, with clean trunks—good, nice timber. Of course, the timber does not grow as large on high dry sandy ridges as it grows in the valleys. Most of the timber is in that good soil in the valley bottoms, but there is more or less wood land all over. The hard wood, poplar and birch, affects the higher land, and the spruce and hemlock the valleys. (P. 90.)

Mr. Fred S. Lawrence, justice of the peace at Fort Vermilion, on Peace River, in northern Alberta, reported on the condition and the kinds of timber in the Peace River Valley.

With regard to timber, the witness explained that in the valley of the Peace River the bottoms of the river, the islands—and there are large islands in the river—and the points the witness mentioned before, are largely covered with a heavy growth of spruce, which grows to a large size. The largest he had ever measured was 4 feet 4 inches in diameter. A tree of that kind would carry its trunk well up, clean of branches 40 or 50 feet up. Of course that is an unusual size, but timber 3 feet in diameter is common on the hills and in the lower part of the bottoms. There is no oak, but there is spruce, birch, and poplar. The poplars grow to a large size. The cotton wood often grows to 4 feet in diameter, and the poplar grows to a diameter of 2 feet. * * * (P. 105.)

Mr. Alfred Von Hamerstein stated that he knew that part of northern Alberta, south of Lake Athabaska, very well because he walked through it every year. From Fort McMurray it is all hilly for the first 40 miles, with patches of muskeg. There is timber there consisting of spruce, about half a foot in size. The country has been burned. Further on there are some lakes which are called muskeg lakes.

From McMurray up in a westerly direction for about 20 miles there is very good timber. He had seen trees that would make 1,000 feet of lumber. From Athabaska Landing to House River there is timber standing yet. There have been some fires raging, but they have not burned it yet. The timber consists of some patches of spruce, of fairly good size, and the rest is poplar. From House River to McMurray there is no timber left. It is all burned out. There are patches here and there along the river, a couple of trees left standing, and there is some very fine timber in that. There is some timber which Mr. Von Hamerstein used for his work, and he had taken out strips 64 feet long, out of which he had cut his walking beams. There are only patches of this

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timber; the rest has been burned. A little farther east there is some fine timber at Chippewyan. From the mouth of the Peace River to about Vermilion there is some good timber. The timber ranges north for quite a while of the same quality. There will be a range of timber 4 or 5 miles long, and then you come to muskeg. From the Vermilion down there is no timber left; it is all burned up. There is no young timber growing up to speak of—at least Mr. Von Hamerstein did not see any, except in a few places where a little young timber is starting to grow. Inland it is mostly poplar with patches here and there of spruce, but mostly poplar. * * * (P. 37 f.)

Mr. Richard S. Cook, mayor of the city of Prince Albert, Saskatchewan, explained that he had traveled considerably over the country about Prince Albert, particularly to the north and northwest of that city.

Passing down the Beaver River country and toward Prince Albert, there is a large quantity of very good spruce. Witness thought that the soil throughout had been in the main very good, but the fires had been very destructive and burned off a good deal of the top soil. Where that top soil is gone the country is of very little use. It is growing up with black birch and second-growth poplar, but where the fires have not destroyed the top soil it is a good country. There are openings, but to no great extent.

Down through the region immediately north of Prince Albert and on through to Montreal Lake it is pretty much a timber country, and the same remarks will apply to it. The soil is better throughout. There is more good land and always has been, and the timber is better wherever it is left. The fires have been very destructive there.

The poplar is good wood and will be useful some day. At present it is not used, as it is not required, there being plenty of spruce, but it will be used some day.

There is quite a lot of timber all through the country between Prince Albert and Stanley Mission. There is merchantable spruce in large quantities around there. A good deal of it is taken up by timber berths, but there is a good deal of it left. There are small bluffs scattered all through the country. There is an unlimited quantity of pulp wood in there. Where it is not good timber it is pulp wood.

About two-thirds of the timber immediately around Stanley Mission has been destroyed by fire.

There is no calculating the amount of the timber that has been destroyed, and the very best spruce at that. The government is now taking steps to try and put a stop to the burning. They have fire engines out there during the dry season, but it is such a vast country it is a very difficult matter. * * * (P. 80.)

Archdeacon McKay, of the Church of England, Diocese of Saskatchewan, reported that he had been forty-five years in the West in charge of missions and was ten years at a place on the Churchill River a little north of Lac La Rouge. In connection with his work with the missions he had done considerable amount of traveling in this immediate territory north from Prince Albert and Battleford.

As to the country around Lac La Rouge, there is timber all through it wherever it has not been destroyed by fires. In some places it has been killed by fires for the time being, particularly in the rocky country. The fires seem to be more destructive in that class of country than in the other part. Archdeacon McKay explained that he put up a sawmill at Lac La Rouge last year, and it is run by water power. The logs that are sawn there are the kind of timber found in that part of the country. They average 17 logs to the thousand feet. They would be logs 14 or 15 feet long. The diameter would be about 2 feet across at the butt—good, large logs, clean timber, very much the same timber as at Prince Albert. This good timber is scattered all over the country, sometimes for miles. It depends on the nature of the country.

Asked how far this timber area would outskirt to the east, west, and north, witness replied he would say that kind of country extends all the way through right down to Lac La Rouge, and down all the way to the border of the Province. Although he had not been through it, he had traveled backward and forward on it a good deal, visited Indian camps, and so on, and it is very much the same kind of timber all through. In some places it is muskeg and in some places heavy timber.

Reindeer Lake is not north of the tree limit. There are trees there, but they are small. They do not grow so large as farther south. It is a good way north of Reindeer Lake before you get into the barren grounds. Witness had never been farther north than Reindeer Lake (p. 84).

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The evidence of all these men seems to indicate that whereas there is or has been some spruce and other timber in this country, that much of it is dead or has disappeared. due to forest fires. Much of the present timber is small, not large enough for anything but pulp wood. There are occasional exceptions along some of the rivers or back a few miles from them.

On page 45 of the Ninth Annual Report of the Canadian Forestry Association (1908) may be found these extracts, being a portion of a paper entitled "Forest survey methods," prepared by A. H. D. Ross, faculty of forestry, University of Toronto, and presented to the association at Montreal March 12, 1908:

TURTLE MOUNTAIN RESERVE.

In the case of the Turtle Mountain Forest and Game Reserve, about 40 miles south of Brandon, Manitoba, Mr. R. D. Craig, B. S. A., F. E., late inspector of dominion forest reserves, found by the methods I have just described that the unburned area of 1,611 acres has standing on it enough small aspen to yield 19,825 cords of wood; of the balm of gilead, 7,007 cords; of birch, 7,695 cords; of green ash, 1,068 cords; of oak, 1,379 cords; and of elm, 593 cords; total of 37,567 cords. On the partially destroyed area of 6,371 acres the smaller living trees would yield about 39,520 cords of wood and the standing dead trees about 28,250 cords. The dead and down timber amounts to nearly 10 cords per acre, or 63,710 cords altogether. Of the living trees large enough for saw timber, it was found that the unburned area yielded 453 board feet per acre, and the partially destroyed only 122 board feet, making a total of only 1,507,000 for the whole tract. Thus the total stock was found to consist of 77,087 cords of green timber large enough for firewood, 9,960 cords of dry fuel, and 1,500,000 board feet of saw timber.

The remaining 63,872 acres, or 85 per cent of the total area, included the lakes, open prairie, and areas which have been completely destroyed by fire.

In the Moose Mountain Forest and Game Reserve there are about 4,000 acres of merchantable timber and about 80,000 acres covered with an excellent young growth of aspen and Balm of Gilead which followed the fires of 1885 and 1897. * * * In the mature timber, the average yield is about 23.4 cords per acre; 193,600 cords altogether. Of dead and down timber there is probably 100,000 cords. The saw timber is so scattered that it is hardly available for milling, but the amount estimated to be present is 4,520,000 board feet of aspen, 760,000 feet of Balm of Gilead, and 368,000 feet of birch.

In the Riding Mountain and Duck Mountain Forest and Game Reserves there are many stands of spruce, much balsam, fir, and jack pine yielding over 6,000 feet to an acre, or 4,000,000 board feet per square mile.

BRITISH COLUMBIA.

Article appearing in the Toronto Globe, February 29, 1908, entitled "British Columbia—the land of big trees," by Judson F. Clark, Ph. D., formerly in the forestry branch of the Ontario government:

As to the resources of the Province of British Columbia in standing timber, there are varied and very widely diverging views. Only one thing is quite certain, namely, that no man knows even approximately the actual stand.

A few days ago one of the largest operators on the coast expressed to me his belief that ten years would see the exhaustion of all the timber which is now regarded as merchantable. This view may, I think, be taken as marking the low-water mark in estimates of persons who have had practical experience in the woods. From a prize essay on this subject recently published, I learn that the total stand of timber in British Columbia exceeds five thousand billion feet, an estimate which is double that given by the editor of the American Lumberman for the forest resources of the entire North American continent. This may be regarded as the high-water mark of estimates by persons who have no practical knowledge of the subject whatever. It reminds one by its extravagance of the statement which recently went the rounds of the press to the effect that Canada had a total timberland area of 1,657,000,000 acres, an area which is without doubt in excess of the total area in North America which can in any fairness be termed "timber land."

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Another statement which reflects a more or less popular impression in the East, I quote from an article recently published in one of our trade journals. The writer who could hardly have been out of doors in British Columbia, stated that the whole province "consisted of an unbroken stretch of forest, extending from the forty-ninth parallel to Alaska, and comprising the largest and most compact body of timber on the American Continent." This is not only grossly misleading in the impression it would give as to the amount of the standing timber, but it gives an altogether false idea of the character of the timber lands. Far from being an unbroken body, the merchantable standing timber of British Columbia occurs for much the most part in comparatively narrow strips along the river courses, fringing the shores of lakes and arms of the sea, and occasionally extending far up the flanks of the ever-present mountains. My personal experience in forest cruising has been limited to the country lying west of the Cascade Range and tributary to the waters which separate Vancouver Island from the mainland. This section is everywhere conceded to carry the heaviest and finest timber in the province, and yet I should say that in the seven months that we tramped in this region, fully 80 per cent of the area of the territory examined was not timbered in the British Columbian sense, and I am confident that less than 30 per cent was timbered in any commercial sense. The waste lands consisted of rugged mountains, glaciers, lakes, and every large area which had been totally destroyed by fire.

What British Columbia lacks in continuity of her timbered areas she more than makes up for in the quantity and quality which may be cut from the area that is actually timbered.

Beyond all question the forest resources of the province are very great, and as regards saw timber probably exceed those of all the rest of Canada combined. It would perhaps be a conservative estimate to place the stand of merchantable timber at present under lease or license at 130,000,000,000 feet. Ultimately when the scarcity and the resulting high price of lumber shall widen the present conception of the term "merchantable," and shall make possible the exploitation of areas now deemed inaccessible, the total cut may easily reach double the figure given, before the virgin stand is exhausted.

In estimating the value of standing timber it is everywhere more a matter of accessibility and markets than either quantity or quality of stand. It can be more truly said of British Columbia than of any other heavily forested country that the timber markets of the world are hers. On the coast, for its entire length, is a succession of deep-water harbors surpassing anything to be seen elsewhere. Directly tributary to these harbors are the finest of the forest lands. The interior, while less accessible, has many mighty rivers which outlet to the sea. Railroading, to be sure, is very costly where trunk lines are concerned. Fortunately, no trunk lines will need to be built to tap the timber. Within four years there will be four trunk lines from the plains to the sea. These lines will open up a vast area by tapping the drainage courses of the interior, and comparatively cheaply constructed branch lines and logging roads will open up the rest. As I have already remarked the markets for the product of the British Columbia forests are the markets of the world. The only market which can be reached at small cost is the local market, which already consumes a vast deal of timber, and is increasing its demand by leaps and bounds. All other markets are reached at considerable cost. To reach the prairie provinces of the Canadian middle west, which of late years has become the best market, it is necessary to carry it over two mountain ranges, with a total hill climb of over 8,000 feet. The new trunk lines will, however, cut this grade in half, or less, to the great advantage of the trade, and doubtless of the consumers also. All other markets are reached by crossing oceans at considerable, but ever decreasing cost. At the docks of our great coast mills may be seen ships loading for China, Japan, Australia, western and eastern South America, South Africa, Europe, and even eastern North America. The opening of the Panama Canal ten years hence can not fail to give a great impetus to all trade touching that half of the world which borders the Atlantic Ocean.

The cargo trade is already very large and is growing rapidly. The only thing that can prevent its growth to enormous proportions will be an overwhelming demand for the products of our forests throughout Canada—particularly in the plains country—and in the United States, which may make very great exportation to other continents impossible. It is my own view, as some of your readers know, that the district of which Chicago is the commercial capital will, within half a century, lead the world in timber hunger and lumber prices.

Before closing the discussion on the resources of the province, I must comment on the climate of the coast district. With the exception, perhaps, of the present virgin stand of timber, the climate is to be regarded as the greatest provincial forest resource. The forests of British Columbia are almost wholly evergreen, and every winter day that the temperature stands above freezing point the green leaves of the forest are

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storing up reserve food preparatory to the production of wood the following season. In the East there are at best not more than seven months of such food storing; here there are twelve, with the result that when spring comes the terminal shoot which marks the upward growth commonly extends itself skyward in the neighborhood of 3 feet, and often much more, as compared with an average of a foot or 18 inches in the East. Doubtless the heavy rainfall and the humidity of the atmosphere contribute greatly to this remarkable growth.

The different forest types of the entire province have two characteristics in common. They are all predominantly coniferous and contain practically no trees which are not useful and even valuable for the production of sawn lumber. Otherwise they may be divided into two distinct groups, the Coast and the Interior.

On the coast forest the trees attain much larger dimensions and the undergrowth is very dense, making traveling in the "brush" a very tedious and very laborious process. An average of a mile an hour is extremely rapid traveling west of the cascades, and it is often impossible to make an average of half that speed. The only possible means of locomotion in this region is afoot. In the interior valleys the timber is much smaller and the ground is comparatively free from undergrowth. In many places it is possible to travel rapidly many miles in different directions on horseback.

The leading species on the coast is the Douglas fir and the red cedar. North of Queen Charlotte Sound the spruce takes the place of the fir as a leading tree. The only other trees of commercial importance are the western hemlock, the white fir (so-called "larch"), and the yellow cypress. All six species rank among the world's best timbers—are, in fact, unexcelled in their own classes. The fir naturally falls into the same class as southern pine, and is its equal in every respect, and superior in the dimensions afforded. The red cedar is the best cedar in the world, and superior in the dimensions obtainable. The hemlock is free from the two defects of eastern hemlock, viz, brashiness of grain and "shake," and has no new faults, while its enormous size, compared with that of the eastern tree, gives it a greater value for many purposes. The white fir (abies), and the spruce are ideal pulp woods, and can be used for any purpose for which the eastern spruce is used. The yellow cypress resembles a cedar, but the wood is harder, stronger, tougher, more elastic, and highly aromatic. It is exceedingly durable, and when found in large size is much the most valuable wood on the Pacific coast.

The leading species of the interior valleys are the yellow pine, tamarac, Douglas fir, red cedar, spruce, and hemlock. The cut per acre of these interior lands is, as a rule, much less than on the coast, but occasionally areas are found on which the trees stand very close, and the cut is enormous.

In the early days the logging was done almost entirely by means of ox teams. Sometimes as many as 24 oxen—two abreast—were used to haul the heavy timbers over the "skid roads" to the water. The skid roads were built by embedding cross skids in the roadway over which the logs were drawn after the removal of the bark. Later horses and mules replaced the oxen, being much faster. Now the steam "donkey" has practically replaced all animal motive power in the coast forests.

With the heavy timbers to be handled it was possible, in the days of the oxen and the horses, to log only such areas as were comparatively free from rock, and give a downgrade all the way to the water. The logging engine has made possible the logging of much rougher lands, and has greatly lessened the cost per thousand. A few logging railroads are already in operation and others are under construction. With the exhaustion of the log supply on the lands directly tributary to tide water the logging railway must in a few years become the ordinary method of bringing the logs to the water. A feature of logging on the coast of great economic interest is the fact that the climate admits of continuous operation throughout the year.

Prior to the construction of the Canadian Pacific Railway the only market available for the product of the British Columbia forest was export by ships to foreign ports. The earliest mills of importance engaged in this industry were built in the early sixties. Their output varied from 25,000,000 to 35,000,000 feet for many years, but recently the trade has expanded greatly, and is at present in the neighborhood of 100,000,000 feet.

The building of the Canadian Pacific Railway and the development of the Canadian middle west has resulted in an enormous development of the lumber business, and has made possible the utilization of a great deal of good lumber, which it was not possible to market when the only trade was that of export. The opening of two or three new lines from the sea to the plains within the next four years will undoubtedly result in a great stimulus to the production of lumber, both on the coast and in the interior. The opening of the Panama Canal ten years hence will undoubtedly open a new era in this regard for the entire Pacific coast.

The government policy in the disposal of timber lands has had a checkered history. In the early days considerable areas were sold or given away in fee; later a system of

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leasing was adopted, with a view of encouraging the development of the milling industry. In 1888 the tenure of the leases was fixed at thirty years, and a land tax of 10 cents per acre and a royalty of 50 cents per thousand feet on all timber cut was imposed. Since 1892 no leases of timber limits have been granted without being offered to public competition. The competition, however, was largely nominal, as there was an abundance of good lands for all who wished to take them up. Many changes have been made at different times in regard to the taxation and other obligations of the holders of leased lands. At the present time the life of a lease is twenty-one years, but at the end of that time the owner has the privilege of renewing for another term; and further terms of twenty-one years with a readjustment of the ground rent and royalty to bring it into conformity with that obtaining on licensed lands at the times of renewal.

In 1888 the chief commissioner of lands and works was empowered to issue special timber licenses good for one year, giving the right to cut timber on crown land subject to the payment of an annual license fee and a royalty of 50 cents per thousand on all timber cut. The legislation governing these licenses has also undergone considerable modification from time to time and assumed its present form in 1905.

According to the legislation of 1905, anyone staking timber on unlocated crown land was entitled, after due advertisement, to a special timber license to "cut and carry away the timber" on 640 acres on the payment of an annual license fee of $140 ($115 east of the Cascades). The timber, when cut, was subject to the payment of a royalty of 50 cents per thousand.

These licenses are issued for one year only, but are renewable for twenty-one consecutive years. The government retains the right to increase the amount of royalty and also the amount of the annual license fee, although there is some legal doubt as regards this latter. Under this law the bulk of the finest and most accessible timber lands of the Province have been taken up.

The most obvious defect in this manner of disposing of timber lands is that all lands, good and poor, are handed out by the government at one price, and although the right to increase the royalty on cut timber is clearly retained (and possibly as regards the annual license fee also), it is evidently impracticable to raise it higher than the poorer lands can stand. A second defect is the time limit to renewal. As the law stands now, the bulk of the finest forest areas of the Province must be logged before the expiration of twenty-one years, or the owners will lose title to their timber.

The special license law, with its high annual license fee, has been a success as a revenue producer. It has filled the treasury of the province to overflowing at a time which would have otherwise been a critical period in the history of its finances. But, like the "bonus" system formerly in vogue in Ontario, it is simply a device for the discounting of future forest revenues—a measure justified only by the gravest of financial emergencies.

That there must be provision made for a liberal extension of the time allowed for the removal of the timber now held under special license is evident to all. The harvesting of the bulk of the timber of the province within twenty-one years would mean the demoralization of the timber industry during the process, and its practical extinction at the end of two decades, than which no greater calamity could befall the province, or perhaps the Dominion.

The space at my disposal has, I fear, already been exceeded, but in closing I wish to go on record with a prediction. It is to this effect: That although as yet little attention has been given to the art of forestry on the Pacific coast, it will develop that within the lifetime of many who read this the Pacific slope will lead the world in applied forestry as a strictly commercial proposition. The wherefore for this belief is very simple: We have a climate which will produce in about forty years, as much timber per acre as can be grown elsewhere in North America or in Europe in a century. With money worth 5 per cent this means that timber can be grown hereat less than one-tenth the cost that it can be produced elsewhere. If you don't believe it, just figure it out and see, or ask Doctor Fernow.

ADMINISTRATION OF TIMBER LANDS.

On March 11, 1904, Mr. Aubrey White, assistant commissioner of crown lands for Ontario, presented to the Canadian Forestry Association, in convention at Toronto, a paper entitled "Systems of Administration of Timber Lands in Canada." This is printed in the fifth annual report of the association (1904), on pages 60 to 69:

Having been requested to read a paper at this meeting of the Forestry Association, I have chosen as my subject "The Systems of Administration of Timber Lands in

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Canada," a subject which lies within the scope of our studies and ought to be of importance to any society taking an interest in the preservation of our forest wealth.

I have not confined myself to the provincial systems only, because my paper would not be complete without some reference to the Dominion laws and regulations, and I have strayed a little afield to notice the system prevailing in Newfoundland, which we hope soon to see included in the constellation of nations, if I may so put it, which form this great Dominion. [Applause.]

I suppose I might have contented myself with making a collection of the laws and regulations covered by my field of study and have them read to you, leaving you to form your own opinions about their efficiency; but I have thought it would be more interesting, as well as instructive, if I were to take the most important of the systems and trace it from the seed up to the full-grown tree, with its numerous branches of regulations. The most important system is that prevailing in Ontario and Quebec, and I bracket the system of these two Provinces together, because they have grown from the same germ, were under one management until the year 1867, the date of confederation, and since then have differentiated very slightly. The seed of our system was sown in the period known as the "French régime," when, in grants of crown lands to the seignors, the oak timber, and later on the pine, was reserved to the King, and did not pass with the soil. Some of the principles that govern free grants under our legislation of to-day are found in these grants, and, as was to be expected, some of the difficulties which exist to-day were troublesome even in that early period.

As a typical grant, I take that made to Sieur de la Vallier by the government of Quebec, in 1683. In it we find (1) that settlers are to be put on the land and that they must take possession, make improvements, and keep house and home within two years, otherwise the location was to be forfeited; (2) the oak timber was to be reserved to the King, and had to be protected; (3) the necessary roadways and passages had to remain open, and (4) the mines and minerals were reserved to the King. In our free grant there is required (1) actual residence and improvements, (2) the pine timber is reserved to the King, (3) roads and streams are reserved, and (4) the mines and minerals are also reserved to the King. The reservation of the oak timber was not a dead letter. I have read one permit—familiar name—granted by the governor in 1731, authorizing the holder to enter upon a seigniory and cut and remove the timber required for building a vessel, which timber was to be brought to Quebec and there inspected and received, and a great deal of our square timber is to-day brought there to be inspected and received for shipment. Trespasses were provided against, and the regulations were drastic, which not only include confiscation of the timber, as in our day, but also forfeiture of the horses and plant engaged in taking out the stolen timber. The settlers' grievances were also present, for we find that a settler having cut some oak trees in process of clearing and sold the logs cut from them, the seignior immediately fined him. The settler appealed his case to the governor, who, in effect, said "how can he clear the land without cutting down the oak trees; why should he burn them if he can turn them into money? It is in the public interest that trees felled in the course of clearing should be sawn into boards and disposed of in order that the settler may obtain a little money to assist him in making his improvements rather than that he should be obliged to burn them on the land," and he further confounded the seignior by calling his attention to the fact that the oak was reserved not to him but to the King. If the settler cut beyond the limits of his clearing, or failed to improve his location, any timber cut by him was held to be a trespass. Here are the very same regulations that prevail to-day under which the settler may cut and sell timber required to be removed in clearing his land, and commits a trespass if he cuts beyond the limits of clearing or before he has become a bona fide settler. The right to take timber free of charge for public works, such as bridges, colonization roads, etc., was reserved in the grant to the seignior, and the same reservation is found in our timber licenses to-day. After what I have said you will see why it is I go back to the French régime for the beginning of things.

When the British took possession, the governor's attention was directed to the timber question. Pine, of course, was reserved to the King for naval purposes, but the governor went a step further and issued instructions that areas containing quantities of pine were to be reserved absolutely; no settlers were to be allowed in them, and—wise precaution—no sawmills were to be erected anywhere near pine reserves, except by his express permission. Now, you will note that down to the end of the year 1700, though the pine was reserved to the Crown, and pine areas were to be kept isolated, there is no mention of any authority being given to enter upon the crown domain to take out timber for ordinary lumbering purposes, and here to dispose of the question of pine reservations, which, by the way, are now over one hundred years later, being made for the first time, it will be sufficient to say that none were made;

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the policy was started but no life given to it. What was done was to insert a reservation of the white pine to the King in all patents issued.

We now come to a period where timber was cut for exportation from Canadian forests. The reservation of the pine, as already stated, was to be for naval purposes. Shortly after 1800 the attention of the contractors to the dockyards in England was called, perhaps by some wide-awake Canadian, to this reservation, and perhaps it was said by some Canadian advocate of "Preferential trade within the Empire:" "Why do you not come to Canada and get some of your timber there instead of getting it all from the Baltic?" Be that as it may, the naval contractors did apply to the Home Government for permission to cut masts, etc., in Canadian forests, and licenses—mark that word—were issued, one of which is now in my possession, dated 7th October, 1807, authorizing Messrs. Scott, Idles & Co. to cut timber in the forests of Canada. This license was directed to the surveyor-general of woods and forests on the continent of America—fancy that for a jurisdiction. Messrs. Scott, Idles & Co. transferred their rights to Messrs. Muir & Jolliff, of Quebec. The lieutenant-governor in council of Canada directed the deputy surveyor-general of woods for Canada to mark the trees that might be cut—quite a contract for him, was it not? No attempt seems to have been made to inspect this cutting, much less mark the trees, and cutting was limited only by the ideas of the people who were operating under these licenses. Here we have the first issue of any form of authority, under British rule, to cut timber on the crown lands, and the name of that authority, viz, license, has been continued ever since. This business of contractors for dockyards cutting by proxy was the genesis of our square-timber trade, and it centered in a few Quebec merchants, and these gentlemen were the precursors of those great firms which afterwards made Quebec famous as one of the principal timber markets of the world. It is to be noticed that these licenses did not cover any area. The holders of them went where they pleased, cut the best timber, and paid nothing for it. The first of these licenses was issued in 1807, and it was not until 1826 that we find any attempt at regulation or supervision. Such a system as this created discontent, it being in the nature of a monopoly, and at last the people began to take the law into their own hands and go into the forests and cut as they pleased without any authority.

To bring an end to the discontent, bring order out of chaos, and more important still, to obtain some revenue from the timber cut, Sir Peregrine Maitland, the lieutenant-governor, issued a proclamation on the 3d of May, 1826. Under this any person was at liberty to go into the forests along the Ottawa River and its tributaries and cut as much timber as they wished, subject to paying 3 cents per cubic foot for oak, 2 cents per cubic foot for red pine, 1 cent per cubic foot for white pine, and 4 cents each for saw logs suitable for deals. If trees were cut that did not square 8 inches, double these rates were exacted.

Under these regulations, bad as they were, we have the first attempt to collect revenue from crown timber. Under this system disputes as to boundaries took place, and there was no proper supervision of the cutting. The next year Mr. Peter Robinson was appointed commissioner of crown lands and surveyor-general of woods and forests. He had authority to grant license over such territory as the governor approved of. The licenses were to be limited as to quantities; 2,000 feet was all that could be cut under one. They were to be advertised in the York Gazette at an upset price and sold by public auction. Here is the first provision for an auction sale of crown timber. The licenses ran for one year only, but timber had to be cut within nine months and the dues had to be paid within fifteen months, and the timber was to be measured by a government measurer. This system never took life; it died stillborn. The regulations established by the proclamation of 1826 seem to have been continued in the Ottawa region, at any rate, and not much timber was cut elsewhere for export.

In 1840 the system was described to be as follows: The person desiring to cut applied in the summer or autumn, stating quantity desired to be cut. A license was issued; the licensee paid 25 per cent of the dues on the quantity applied for in advance and entered into a bond to pay the balance when the timber came out. When the timber reached Bytown, the following season, it was measured and went on to Quebec. The parties applied for a license for only a small quantity so as to keep down the advance payment, but in practice they cut as much as they pleased. The dues were finally paid at Quebec on all the timber they took out.

We now come to the period of responsible government, and the union of the Provinces of upper and lower Canada, which brought about a closer guardianship of the natural wealth of the country. The union took effect on the 10th of February, 1841. A year later instructions were issued by the Hon. John Davidson, commissioner of crown lands. They were intended to secure greater strictness in suppression and to introduce the principle among lumbermen. These instructions are dated March 30, 1842. Under

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them licenses could be issued at the former rates. The licenses were to be for a fixed period, at the expiration of which they were to absolutely cease and determine. The former licensee could get a new license for the same territory, provided he came forward and applied before the 1st of August. Provision was made for sale by public auction in cases where there were conflicting applications. No greater extent than 10 miles was to be licensed to one person; 5,000 cubic feet of timber per mile had to be made annually.

On the 24th of June, 1846, new regulations were made. Under these new limits must not exceed 5 by 5 miles; current licenses to be renewed for three seasons, after which they were to be curtailed to 5 by 5 miles, but existing licensees might select the particular part of their limits they desired to keep. Licenses not applied for before the 15th of August were to be put up for sale on the 1st September following, as well as any other berths for which more than one application had been received, and sold to the highest bidder. Here again we have the principle of a public sale, although one would say that fifteen days was a very short period in which to make an examination. The quantity of timber to be taken out in each mile was reduced from 5,000 feet to 1,000 feet, and, after the 1st September, limits were to be granted to the first applicant complying with the conditions of sale. Parties applying for territory or unexplored limits were to furnish a sketch by a sworn surveyor, describing the territory and tieing it to some known point. If the sketch was afterwards found to be incorrect the license could be declared null and void. In order to induce the lumbermen to keep a close eye on one another, provision was made that a forfeited limit was to be licensed to the party giving information as to the nonfulfillment of the conditions of the license, and, failing the application of the informer, then to the next applicant. These instructions also specifically declared the licenses were not transferable and that any attempt to transfer them would entail forfeiture. Applicants had also to declare who were associated with them in the application.

Two months later, on August 14, 1846, other regulations were published. The only important change made by these regulations was that limit holders might transfer their limits with the sanction of the department of crown lands, a provision that has come down to our own time, and the quantity of timber to be cut each year per mile was reduced from 1,000 to 500 feet.

In 1849 a select committee of the house was appointed to consider the causes of depression in the lumber trade and suggest a remedy. This committee made two reports, in which they stated that the depression was caused by overproduction, which was stimulated by the uncertain tenure of licenses and the threatened subdivision of the licenses already granted. Also that provisions requiring a certain quantity to be produced, without respect to the state of the markets, had a bad effect, and that the want of any decisive action by the department with respect to disputed boundaries was demoralizing. The uncertainty of the tenure and the disputed boundaries caused great trouble. Wealthy lumbermen who had the advantage of large numbers of men would go in where they liked, without respect to others' rights, and rush out all the timber they could manage to cut in one season. As a remedy, positive rights of the renewal of licenses was recommended so as to give certainty of tenure. Surveys of boundaries and the imposition of ground rent for the areas covered by the license was also suggested, and it was recommended that no distribution of areas should take place. It was further pointed out that under the regulations the practice with respect to the collection of dues was to ascertain the quantity by counting the number of sticks, without respect to size, and averaging them at a certain number of feet per stick, which average was too high in some cases and too low in others, and with respect to this the suggestion was made that dues should be paid on the actual contents of the timber ascertained by count and measurement.

The result of the report of this committee was the passage of the "Crown timber act," which, with comparatively little change, is to-day the law under which all the timber licenses are issued in the provinces of Ontario and Quebec. This act provided that the commissioner of crown lands might grant licenses for unoccupied territory at such rates and subject to such conditions, regulations, and restrictions as the lieutenant-governor might establish from time to time. No license was to be granted for a longer period than twelve months and all the licenses expired on April 30 of each year. The territory licensed was to be described in each license. The licensee was given absolute possession of the territory so he could prosecute trespassers and seize the timber cut by them. The making of sworn returns of the timber cut year by year was provided for, and there were many other provisions of less importance. The first regulations under this act are dated September 5, 1849, Agencies were established—agents might, on application, grant licenses, apparently without referring the applicants to the commissioner of crown lands. Sketches of the territory applied for had to be furnished. The area of timber limits was increased

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from 5 miles by 5 miles to 10 miles by 5 miles. Licenses were to be confined as far as possible to one side of the river. There was no restriction to the number of limits a man might hold. The timber was to be cut and paid for at certain rates. Transfers of limits were to be in writing, and not valid until approved by the commissioner of crown lands. It also provided that settlers or squatters cutting without authority if they cut any timber except for building, fencing, clearing, etc., were to be treated as trespassers. These restrictions contained a distinct provision for renewal of licenses. The proper counting and measuring of timber cut was also provided for and a clause was inserted in the regulations that actual settlers were not to be interfered with in the clearing of the land, etc. Here the settler first appears in the regulations. Under these regulations all a person had to do in order to obtain a limit was to make application to the agent, furnish a sketch of the territory he desired to obtain, and give security to pay the dues on the timber cut. There was no provision for competition except where adverse applications were received. Generally speaking, the principle of selling limits by public auction appears to have been entirely absent from the regulations.

In 1851 fresh regulations were promulgated. The new provisions were—I call particular attention to this—that saw logs cut on the public domain, if exported, paid double dues. Ground rent at the rate of 50 cents per mile was imposed. Here we have discrimination against the export of logs and the first imposition of ground rent. The ground rent was to be doubled each year that the limit was worked. Vacant territory was to be granted to the first applicant provided he called and paid the ground rent, in the Bytown agency, within three months, elsewhere one month. If adverse applications were made for the same territory, then the right to receive the license was decided by lot. Here we notice a gambling spirit in deciding the rights of individuals. Who would toss up for a limit to-day? There was also a provision to sell to the highest bidder in case of clashing of applications. Registers of the licenses issued were to be kept in the agencies and the crown lands department and were to be open for public inspection. Decisions of the crown timber agents as to disputed boundaries were to be final until reversed by arbitration. If one party failed to appoint his arbitrator, then the crown timber agent took the position. Should they not be able to agree on an umpire the commissioner was to appoint one. Transfers of limits were allowed, subject to approval of the commissioner of crown lands. Parties defying the regulations of the department or the decision of the arbitrators were to be refused further license and their berths forfeited and disposed of. Security had to be given for the timber dues, etc.

In 1855 an order in council was passed dealing with the ground rent question, and fearing apparently that the imposition of ground rent might lead to the idea of rights of ownership, and in order to prevent any misunderstanding, this order in council contained a declaration of great importance, to wit, that the changes made are not to imply that the government can not increase the ground rent or timber dues at any time in the future, as the circumstances of the trade might render it expedient. Previous to the year 1857 no information could be obtained about the transactions of the crown lands department except by special return to the house, but on motion of Mr. A. T. Galt it was, in the session of 1856, ordered that an annual report of the management of the crown domain should be submitted to the legislature each session. The first report, and it was one of the best reports that has ever been made by the department, was made for the year 1857.

In 1857 another change was made in the time for the payment of the ground rent; it was now made due on April 30 in each year, the day on which ground rent becomes payable under the present regulations. The limited number of cases of competition which came up under the regulations forced upon the attention of the commissioner the principle of selling timber berths by public auction, for in the report of the commissioner of crown lands for the year 1859 it is stated that wherever competition existed or could be excited recourse had been had to the plan of disposing of the timber by public auction. Between the years of 1856 and 1860 attention was sharply drawn to the practice of people purchasing valuable timber lands under the pretense of settlement, thus depriving the Crown of its revenue and the licensees of what they believed to be their property. Energetic steps were taken by the department to stop this system of plundering. Numerous sales were canceled when the lands were found to be valuable for the pine timber. Under the settlement regulations then prevailing, strange to say, the settler could burn whatever timber he cut in the course of clearing his land, but if he cut it into saw logs and sold them he was guilty of trespass.

The good sound position laid down by the governor during the French régime was departed from with disastrous results. The settlers were very much embittered and a deplorable state of matters came about. Some remedy had to be found, consequently new regulations were passed under which a class of license called a "settler's

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license" was issued to all settlers who erected a house 16 by 20, cleared 5 acres in every 100, and had been six months in residence. A fee of $4 was charged for these licenses. Timber dues were charged upon the timber cut, and these dues were applied in payment of the purchase money of the land with a refund of any money collected in excess of the purchase money, less 10 per cent for collection. Any person who is familiar with the history of lumbering and settlement in Canada during the period from 1856 to 1866 will know the bitter feelings that existed between the settler and the timber licensee, and how the department was beset with criticism and difficulties in respect to clashing of interests and the providing of a remedy. Settlers' licenses apparently did not meet the difficulty, and the issue of them greatly fell off until they entirely disappeared.

In 1866 new crown timber regulations were made. Sales by public auction were provided for. These sales were to be held on January 10 and on July 10 in each year, or on any other date that the commissioner might fix. The limits were to be offered at an upset price of $4 per mile, the highest bidder to have the berth. If there was no bidding, the berth was granted to any person paying the upset price. The commissioner could sell between the dates of auction sales at $4 per mile to any person who applied for a berth. One berth only could be sold to each applicant. Timber licenses were to expire on April 30 in each year. Ground rent was continued at 50 cents per mile. No licenses were to issue on a smaller computation than 8 square miles. The ground rent was to increase annually on berths not worked until it reached 23s. 4d. ($4.67) per mile. When occupation took place it reverted to the original rate of 50 cents per mile. Five hundred feet of timber or 20 sawlogs had to be made every year for each mile of the limit; renewals of licenses were provided for if the regulations and payments were complied with. Applications for renewal had to be made in writing every year before July 1. Transfers could not be made if dues were owing.

We have now come to the period of confederation which was consummated on July 1, 1867. Since then every Province has been free to manage its own affairs and enact such laws and regulations as would best carry out the policy suited to its circumstances. It is a great testimony to the wisdom of the legislators of bygone years that the crown timber act of 1849 has remained the charter, so to speak, of the timber-licensing systems of Ontario and Quebec, very few amendments having been made to it in either Province. The great strength of the act is that it only lays down broad principles, leaving the management of the crown domain to be fixed by the regulations as experience teaches or emergency requires. It may be worth while to state the broad principles laid down: (1) The commissioner of crown lands may issue linceses, which licenses are to cover all kinds of timber during their currency; (2) licenses are to run for one year only and then absolutely determine; (3) proper returns of the cutting of timber are to be made, and (4) timber cut in trespass is liable to seizure and confiscation.

Since confederation the act has been amended as follows: Timber on road allowances is declared to be covered by the timber license; lots which have been sold to actual settlers are to remain in license until proof of settlement duties is filed in the department; the commissioner of crown lands can sell timber on pulp concessions which is not covered by the concessions, and no pulp concession can be granted for a longer period than twenty-one years, and most recent and most important, pine timber and spruce on lands under license must be manufactured in Canada. It will be seen that the points touched by the act are not very numerous, but the field left for legislation is enormous—just listen to the language of the act: "The commissioner of crown lands may issue timber licenses subject to such rates and conditions, regulations, and restrictions as may from time to time be established by the lieutenant-governor in council." No attempt is made to define what sort of conditions or restrictions may be imposed; anything that comes within the meaning of these words can be done by regulation. This, with the discretion taken in combination with the absolute termination and legal death of every timber license within one year of its birth, places almost unlimited power in the hands of the Crown. Take one example: When our good friends over the border undertook to treat us, as we thought, unfairly, and the government of Canada could not act without making matters worse and perhaps ruining the lumber trade, we were able, by passing an order in council to attach a condition to all licenses to the effect that timber cut on crown lands must be manufactured in Canada, thereby transferring a goodly portion of the sawmill business of the State of Michigan to the Province of Ontario and leaving our friends who would not come over to Canada in the position of Lord Ullin when the waters wild went over his child. (Applause.) Of course, these regulations being very important, they were afterwards crystallized into an act of the legislature. Several acts have been passed by the legislature since confederation amending the crown timber act and affecting lumbering interests, and I will just mention them. There is an act affecting the rivers and streams which

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declares that every one has the right to use these waterways for floating timber or logs; the cullers' act, which requires that persons desirous of culling logs cut under license shall pass an examination and be licensed by the commissioner of crown lands; the act for the preservation of the forest from destruction by fire, under authority of which fire rangers are put upon limits at the joint expense of the government and the licensee; the act affecting liens of employees on saw logs and timber; and act amending the free-grants act, which reserves the pine timber on lands located after March 5, 1880, and enables them to be continued in license; the act for the driving of saw logs and timber, which made some needed provisions with respect to parties who might be inclined to shirk their share of the expense and responsibility.

On May 28, 1869, the crown timber regulations of 1866 were abrogated and new regulations were made by the lieutenant-governor in council of the Province of Ontario. To a great extent the old regulations were incorporated in the new. Of course some new clauses were added at that time, and others have been added since. The most important clause in the new regulations was the requiring of survey, exploration, and valuation of the timber limits before they were offered for sale; then due advertisement of the sale by public auction to the highest bidder. Another important change was the increase of timber dues from 50 cents per thousand to 75 cents per thousand and of the ground rent from 50 cents per mile to $2 per mile; another was the requiring of a more elaborate system of returns, with power to the commissioner to have an inspection of the books, records, etc., if fraud in returns were suspected.

In 1887 the regulations were again amended by increasing the timber dues from 75 cents per thousand to $1 per thousand and the ground rent from $2 per mile to $3 per mile.

In 1890 for the first time the sale held in that year by authority of order in council covered only the pine timber, and the dues were again increased for the purposes of that sale to $1.25 per thousand.

In 1903, for the purpose of the timber sale held in that year, the dues were increased from $1 per thousand to $2 per thousand, and on square timber from $20 to $50 per thousand cubic feet, and the ground rent from $3 to $5 per mile. Regulations affecting the last two sales were passed fixing a time limit beyond which licenses were not to be renewed of from ten to fifteen years. Regulations have also been made to the effect that lands located or sold are to pass automatically out of the timber license for anything but the pine timber on the day of sale. Regulations have also been passed that require licensees to supply sufficient timber for local sawmills upon being paid the fair value of the same. Regulations have also been made requiring that pine and spruce shall be manufactured in Canada, which of course have been crystallized into legislation, and more recently regulations have been passed requiring that hemlock bark shall be used in Canada.

Having traced the history of the license system, and given you the substance of the recent amendments to the Ontario laws and regulations prevailing in the Dominion and Newfoundland, I shall now proceed to refer to the different laws and regulations. I shall refer to these in a general way and briefly. It is only necessary to call your attention to the principles of the systems and to the wide divergencies of the laws and regulations. The licensing systems prevailing in Ontario and Quebec have, as I have said, a common origin, and have run nearly along parallel lines.

The New Brunswick licensing system dates back to August 26, 1817, when the lieutenant-governor in council framed a set of rules with regard to timber license. One interesting provision in these early regulations was that licenses were to be given only to British subjects. No dues appear to have been charged at that time.

Nova Scotia had no timber licensing system until quite recently, and the British Columbia system is comparatively modern and is based somewhat on our system, diverting very widely, however, in the matter of tenure and the rates of ground rent and dues. The Dominion system is also based largely on the Ontario system, with such modifications as different circumstances have called for. I have not succeeded in tracing the Newfoundland system back to its origin.

In Ontario the commissioner may issue licenses after sale by public auction, a reserve bid being fixed but not made public. The licenses are annual and terminate on April 30 in each year, but by regulations are renewable. Ground rent runs from $3 to $5 per mile and is subject to increase or decrease. Dues on pine timber run from $1 to $2 per thousand feet and are subject to increase or decrease. Pine logs, pulp wood, and hemlock bark are required to be manufactured in Canada. Fire rangers are placed upon all licensed lands, one-half of the expense being paid by the licensee and the other half by the government. These rangers are selected by the licensees. One dollar per mile is charged for transfer bonus on limits that are transferred.

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In Quebec the commissioner may issue licenses after sale by public auction. Limits have to be advertised for thirty days if of an extensive character, and small limits for fifteen days only. There is an upset price made public at the date of sale. The licenses terminate on April 30 each year and are renewable by regulation. Ground rent is $3 per mile, and is subject to increase or decrease. Dues on pine run from 80 cents to $1.30 per thousand, subject to increase or decrease. There is no restriction as to the exportation of logs, except that pulp wood must pay 25 cents per cord additional if exported. Fire rangers are appointed by the government upon the recommendation of the licensees and a tax called a "fire tax" is charged upon the limit to pay the expenses of the fire ranging.

In New Brunswick the commissioner may issue licenses. The mode of disposal is that applicants are required to petition for the limit they wish to obtain and to deposit in the department $20 per mile. The limit is then advertised in the Royal Gazette for fourteen days, after which it is put up at public auction, and if the applicant is the highest bidder he gets the limit. If somebody else bids more and gets the limit, the applicant gets back his money. Limits are not to exceed 10 miles in area. The ground rent is $8 per mile and subject to increase. Dues on saw logs are $1.25 per thousand, subject to increase. There does not appear to be any fire-ranging system. The measurement of logs is made by government cullers. There does not appear to be any restriction as to exportation.

In Nova Scotia there is no provision for sale by auction. The governor in council may issue leases to cut timber, which leases are to be for a period of twenty years, renewable for another twenty years if conditions are complied with. The price is to be 40 cents an acre—not annual—if timber below the diameter of 10 inches is not cut. If timber is cut below 10 inches down to 5 inches the price is 50 cents per acre.[a] The only provision for public auction is where there are adverse applications for the same territory. If lands are not suitable for agricultural purposes they may be leased for pulp purposes as arrangements are made with the government.

In British Columbia limits may be sold by public tender and are to go to the highest bidder. Annual ground rent, $160 per mile; dues, 50 cents per thousand feet b. m. If a mill of certain capacity is erected on a limit the ground rent is reduced to $96 per mile. Dues are abated by one-half on lumber or timber that is exported from the Province. The license or lease runs for a period of twenty-one years, and as this provision is statutory, it is presumed that dues can not be changed during that period. There is another class of licenses called "special license," which cover only an area of 640 acres. These are issued at the discretion of the commissioner, for a period not exceeding five years, and may be renewed at the discretion of the commissioner. Annual ground rent on these licenses run from $115 to $140. There is another system of licensing called "hand licenses," which are given without competition and it is presumed are intended to cover only small quantities. They run only for one year. Timber must be manufactured in the Province. There is no provision for fire ranging on British Columbia lands.

In the Dominion of Canada lands may be put up for competition by tender and go to the highest bidder. Annual ground rent, $5 per mile; west of Yale, $32 per mile. Dues, 50 cents per thousand. Licenses are annual and expire on April 30 in each year, and are subject to renewal. There is a fire-ranging system on government lands paid for entirely by the Crown.

In Newfoundland there is no provision for public sale. Limits are granted by authority of order in council, at a bonus price fixed by the governor in council, which varies according to the situation of the limit, and not to be less than $2 per mile. In any case, notice is to be given in the Gazette for one month. There is an annual ground rent of $2 per mile. Dues on timber are 50 cents per thousand in Newfoundland, and in Labrador 25 cents per thousand feet B. M. Licenses may be granted for fifty years or such further period as may be deemed necessary. Licensees must erect a sawmill and work the limit, sawmill to be capable of cutting 1,000 feet every twenty-four hours. No person having a limit can buy logs from another licensee or cut them by agreement on any other limit than his own. Pulp limits may be granted by the lieutenant-governor in council; not more than 150 miles to any individual or company. The license may run for ninety-nine years or longer. There is a bonus of $5 per mile and ground rent of $2 per mile, and the timber is subject to 50 cents per thousand feet B. M. Pulp concessionaires have to expend $20,000 in plant. All kinds of timber, pulp wood, etc., must be manufactured in the colony.

[a] At last session of the legislature these rates were increased to 80 cents and $1, respectively.—Ed.

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Dominion timber license regulations (established by order in council, dated November 19, 1907), reprinted in Toronto Globe of February 29, 1908:

Licenses to cut timber on Dominion lands in the Provinces of Manitoba, Saskatchewan, and Alberta, the Northwest Territories, within 20 miles on either side of the main line of the Canadian Pacific Railway, in the Province of British Columbia, and in the tract of 3,500,000 acres to be located by the government of the Dominion in the Peace River district, in the Province of British Columbia, lying east of the Rocky Mountains and adjoining the Province of Alberta, shall be disposed of by public auction at the office of the Dominion timber agent for the district in which the berths are situated.

Before any parcel is offered for sale it shall be surveyed by a duly qualified Dominion land surveyor into berths of an area not exceeding 25 square miles, and each of such berths shall then be thoroughly cruised by a duly qualified timber cruiser in the employ of the Dominion government, who shall make as exact an estimate as possible of the quantity of timber on the berth, ascertain its general condition, its accessibility, and any other matters that may be necessary to determine the value of the timber, and to enable the minister of the interior to fix an upset price, and shall furnish a report thereon under oath to the minister. The minister shall then fix an upset price at which the berth shall be disposed of, and no berth shall be sold at less than the price so fixed.

No license shall be disposed of until notice of the sale has been given for a period of not less than sixty days in a newspaper published in the district in which the berth is located and also in a newspaper having a general circulation in the Province.

There shall be kept in the department of the interior at Ottawa a list of persons to whom notice of all sales of timber shall be sent. Any person making application in writing shall be entitled to have his name placed on the said list, and no name shall be removed therefrom until after the expiration of sixty days from the date of a notice to be given in writing to the person so named and sent by mail to his last known address.

The notice of sale shall give the distinguishing number, the description and area of the berth, the upset price, the place, and the day and hour at which such sale is to be held.

Purchases to the amount of $1,000 or under shall be paid in cash at the time of sale. Purchases over $1,000 and not exceeding $5,000 shall be paid one half in cash at the time of sale, and a note or notes shall be given for the remaining half of the purchase price, payable in three months, with interest at the rate of 5 per cent per annum. Purchases over $5,000 and not exceeding $10,000 shall be paid one-third in cash at the time of sale, and notes shall be given for the remaining two-thirds of the purchase price, payable in three and six months, with interest at the rate of 5 per cent per annum. Purchases exceeding $10,000 shall be paid one-fourth in cash at the time of sale, and notes shall be given for the remaining three-fourths of the purchase price, payable in three, six, and nine months, with interest at the rate of 5 per cent per annum. Notes given as herein provided shall be made payable at a bank in the city or town in which the sale is held or at a bank in the city of Ottawa. Cash payments must be made at the time of sale in legal tender or by an accepted check on a chartered bank or by a draft issued by a chartered bank payable to the order of the deputy minister of the interior. If default is made in any payment required by this section, the sale shall be forfeited and void.

The purchaser must also pay the cost or the estimated cost of the survey of the berth before a license is issued.

LICENSES.

No license for any timber berth shall be issued until the full amount of the purchase price, the cost or estimated cost of survey, and the ground rent for the first year have been paid.

All timber licenses shall expire on the 30th day of April next after the date from which they are granted.

The license shall vest in the licensee subject to the conditions mentioned in the license all right of property whatsoever in all trees, timber, lumber, and other products of timber which he is entitled by the license to cut, and which have been cut within the berth during the continuance thereof, whether such trees, timber, lumber, or other products be cut by authority of the licensee or by any other person with or without his consent; and shall vest in the licensee, as against any person other than the Crown in the right of the Dominion, subject to the conditions mentioned in the license, all right of property whatsoever in all trees, timber, lumber, and other products of lumber cut within the berth during the continuance thereof by any other person with-

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out his consent, and shall entitle the licensee to seize in replevin, revindication, or otherwise, as his property, timber of any kind cut upon the berth, where the same is found in possession of any unauthorized person, and also to bring any action or suit at law or in equity against any person unlawfully in possession of any such timber, or of any lands within the berth, and to prosecute any person to conviction and punishment for any offense in connection with such timber or land, and all proceedings pending at the expiration of the license may be continued and completed as if the same had not expired.

A license shall be renewable from year to year while there is on the berth timber of the kind and dimensions described in the license in sufficient quantity to be commercially valuable, if the terms and conditions of the license and the provisions of the Dominion lands act and of the regulations affecting the same have been fulfilled:

Provided, That such renewal shall be subject to the payment of such rental and dues and to such terms and conditions as are fixed by the regulations in force at the time renewal is made.

Whenever any portion of a timber berth has not upon it timber of the kind and dimensions described in the license in sufficient quantity to make it commercially valuable the minister of the interior may, after an inspection has been made, declare such portion fit for settlement and withdraw it from the berth and from the operations of the license covering it:

Provided, That no withdrawal shall be made unless the licensee has had sixty days' notice thereof, and that the minister of the interior is satisfied that the same can be made without unduly interfering with the operations of the licensee on the berth, and that upon such withdrawal the ground rent shall be reduced in proportion to the area withdrawn.

If the minister of the interior ascertains after an inspection has been made that any land within a timber berth is fit for settlement and is required for that purpose, he may require the licensee to carry on the cutting of timber provided for by clause 33 of these regulations on the said land, and on the expiration of the time within which the timber which the licensee is entitled to cut should be removed therefrom may withdraw such land from the berth and from the operations of the license covering it.

If the survey of any timber berth heretofore granted, or which may be granted hereafter, is not completed at the expiration of the period fixed in the advertisement of the sale of such berth, or, in the absence of such provision in the advertisement, by the 31st day of December, 1907, such failure to complete the survey shall be deemed an infraction of these regulations, and shall render the license liable to forfeiture as provided therein.

Provided, however, That the minister of the interior may, instead of declaring a berth forfeited for failure to complete the survey thereof, require the licensee to pay to the Crown the sum of $10 for each day after a date to be fixed by the said minister by notice mailed to the licensee at his last known address during which the survey shall remain uncompleted, and such sum shall be payable whenever demand is made therefor by the proper officer of the department of the interior.

Any right to a timber berth can not be assigned or transferred without the consent of the minister of the interior. The fee for the registration of an assignment of a timber berth or of any interest therein shall be at the rate of $1 for each square mile covered by the berth, but in no case shall such fee be less than $2.

RENTAL AND DUES.

The licensee shall pay an annual ground rent of $5 per square mile, except for lands situated to the west of Yale in the Province of British Columbia, in which case the yearly ground rent shall be 5 cents per acre.

The licensee shall pay the following dues on timber cut on his berths:

Sawn lumber, 50 cents per thousand feet, board measure.

Railway ties, 8 feet long, 1½ cents each.

Railway ties, 9 feet long, 1¾ cents each.

Shingle bolts, 25 cents per cord, and 5 per cent on the sale of all products of the berth:

Provided, however, That the licensees will not be required to pay a royalty on the sale of slabs or on sawdust.

One half the cost incurred by the Crown for guarding the timber from fire shall be defrayed by the licensee thereof, the Crown defraying the other half.

RETURNS OF MANUFACTURER.

4. The licensee shall in each year furnish to the Dominion timber agent having jurisdiction in the matter, at such periods as may be required by the minister of the interior, returns sworn to by him or his agent or employee cognizant of the facts, showing

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the quantities manufactured, sold, or disposed of, of all sawn lumber, timber, or any other product of timber from the berth, with the exception of slabs or sawdust, in whatever form the same may be sold or otherwise disposed of by him during such period, and the price or value thereof.

In lieu of or in addition to the returns provided for by the preceding section of these regulations, the minister of the interior may require that every licensee shall furnish during each year to the Dominion timber agent having jurisdiction in the matter, at such periods as may be required by the minister of the interior, through himself, his scaler, or foreman, or through all of them, a statement in writing in detail, under oath, setting forth the number of pieces of timber, saw logs, and other material cut, caused to be cut, or taken under his license during such period, and the correct contents in board measure of the same, as shown by Scribner's log rule, if the timber has been cut in Manitoba, Saskatchewan, Alberta or the Northwest Territories, and by the British Columbia log scale when cut within the railway belt of British Columbia.

It is required that all licensees, through themselves, their scalers and foremen, shall furnish proofs on oath on the 1st day of May of each year, or at such other time as the minister of the interior may direct, as to the exact locality, by a ground sketch, where all timber, saw logs, or other lumber cut by themselves and others, to their knowledge, upon the timber berth held or occupied by him or them, respectively, have been cut.

MANUFACTURE.

All timber before being put into any stream or lake to be floated to the mill must be marked with a stamp furnished by the licensee and approved by the Dominion timber agent, a copy of said stamp to be placed on record in the Dominion timber office.

All timber taken from berths acquired under the provisions of these regulations shall be manufactured within the Dominion of Canada, and all timber taken from a berth in Manitoba, Saskatchewan, Alberta, or the Northwest Territories must be manufactured at the sawmill of the licensee to be operated in connection with the berth, as prescribed by section 32 of these regulations, unless permission otherwise is given by the minister of the interior, as provided by the said section.

The licensee shall have in operation within one year from the date when he is notified by the proper officer of the department of the interior that the minister of the interior regards such a step necessary or expedient in the public interest, and keep in operation for at least six months of each year of his holding, a sawmill in connection with his berth capable of cutting in twenty-four hours 1,000 feet b. m. for every 2½ square miles of the area licensed, or shall establish such other manufactory of wood goods as the minister of the interior accepts as equivalent thereto.

Provided, however, that, notwithstanding anything in these regulations, a licensee may, in lieu of erecting a mill, be permitted to have the timber cut from the berth or berths held by him manufactured at a mill which is not his own property, provided that he cuts from the said berth or berths at the rate of 100,000 feet annually for each square mile held by him under license.

EXTENT OF PULP-WOOD FORESTS IN CANADA.

Extracts from Pulp Wood of Canada, by George Johnson, statistician, department of agriculture, Ottawa (1901):

The different kinds of wood suitable for the manufacture of pulp are white and black spruce, Canada balsam, poplar, aspen, and pine, spruce and balsam being the most valuable on account of the special quality of their fiber, and also on account of their color. These comparatively soft woods are easily ground. (P. 8.)

It was only necessary to find the land which had the best spruce and the best facilities for the production of the most profitable pulp, which at the same time filled the requirements of paper users. The land of the spruce tree, as of pine, is Canada. * * * The United States of North America have large spruce forests and a very large demand for wood pulp. The United States manufacturers found it profitable to come to Canada for the wood, and in 1899 imported from Canada nearly $1,500,000 worth of pulp wood and wood pulp. (P. 9.)

In Canada there is practically an unlimited supply of wood suitable for pulp of the highest character. The area of Canada upon which spruce grows is almost conterminous with the geographical boundaries. (P. 13.)

The great forest of Canada * * * is spread over the vast territory watered by the Ottawa, the Maurice, the Saguenay, and their tributaries, over 100,000 square miles in extent. Other timber limits are found in the George Bay country, the Muskoka, and the Nipissing regions; the eastern townships and the south shore of the St.

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Lawrence to the gulf, the region on the north shore of the St. Lawrence from the Saguenay to the Betsiamis. * * * These timber limits contain an immense supply of spruce. * * * In the Province of Ontario, north of Lake Nipissing, the surveyors, though specially charged to look for pine, were compelled by the great abundance of spruce to make constant mention of it. (P. 14.)

From an investigation made in 1894 it appeared that from 38 to 40 per cent of Canada consists of woodland and forests; that is, about 1,400,000 square miles. If one-half of this area is spruce, there will be about 450,000,000 acres of spruce area in Canada. In the manufacture of newspaper wood pulp, according to present methods, a cord of spruce is estimated to equal 650 feet, board measure, and this quantity of raw material will make half a ton of sulphate pulp or 1 ton of ground wood pulp. Now, as figured by experts, the best of spruce land possesses a stand of about 7,000 feet to the acre, which is equal to 6 tons of sulphate and 11½ tons of cord-wood pulp, per acre. Taking ground wood pulp as a basis and 10 tons per acre as a product, there are 4,500,000,000 tons of wood pulp in Canada. (P. 18.)

In the Province of Quebec it is estimated that there are 200,000,000 acres of timber limits, mostly timbered with black spruce, the most valuable of woods for pulp and paper purposes. (P. 19.)

The territory of Lake St. John has an area of 19,000,000 acres, of which less than half a million have been stripped of their wood. The remainder are in forest. Three-quarters of these forests are white, black, and red spruce; the other quarter contains spruce, birch, cypress, and pine. The quantity of wood for paper pulp is therefore very large, taking the very low estimate of 5 acres per cord as an average yield of the region. The following table shows the immense resources of the region: (P. 30.)

Region.	Extent.	Cords of pulp wood.
	Acres.	
Peribonka	8,320,000	41,600,000
Mistassini	4,800,000	24,000,000
Chamouchouan	3,200,000	16,000,000
Oulatchouan	3,200,000	16,000,000
Total	19,520,000	97,600,000

In our Canadian forests, east of the Rockies, there are ninety species of trees, but the greater number are confined to a comparatively small area. In our northern forests the principal trees are cedar, balsam (fir and poplar), aspen, white birch, tamarac or larch, banksian pine, and white and black spruce.

The dimensions of our great northern forests are so vast that they seem almost incredible. The central line of the forest belt may be described as starting from the vicinity of the Straits of Belle Isle, and following a west southwesterly course till it passes to the south of James Bay, then turning northwest it follows this course all the way to the border of Alaska, opposite the mouth of Mackenzie River, the total distance being 3,700 miles. The breadth of the spruce belt taken at ten almost equal intervals in the above distance is as follows:

	Miles.
From Halifax to Ungava Bay	1,000
In the Labrador Peninsula	950
From the north shore of Lake Huron to Richmond Gulf, on the east main coast	800
From the international boundary on the northwest side of Lake Superior to Cape Henrietta Maria, on Hudson Bay	600
From the international boundary on Lake of the Woods to Cape Tatnam, on Hudson Bay	600
From Yorkton, East Assiniboia, to Fort Churchill	600
From Battleford to the limit of forest northeast of Reindeer Lake	600
From the summit of the Rocky Mountains on a northeasterly line passing through the Athabasca Lake	800
From the watershed of the Pacific slope on a northeasterly line passing through Great Slave Lake	700
From the watershed of the Pacific slope on a northeasterly line crossing the Mackenzie River on the Arctic circle	350

This gives an average breadth of 700 miles. If we multiply the total by this breadth the result is an area of 2,590,000 square miles as the approximate area of our northern forests, in which the black and white spruces are the prevailing trees.—Dr. Robert Bell, assistant director geological survey. (P. 32.)

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Article in the Toronto Globe of February 29, 1908, entitled "The urgent need of a forward forestry policy," by Prof. B. E. Fernow, dean of forestry, University of Toronto:

To the EDITOR OF THE GLOBE:

In responding to your request for an expression of my opinion as to the forestry situation, I can not open the discussion better than by the statement that "the much-vaunted virgin timber wealth of Canada would not suffice to supply the annual consumption of the United States for more than twelve years."

The mills of the gods grind slowly, but still more slowly does a democracy learn the lessons of the world and amend the follies of its happy-go-lucky unconcern of the future.

For twenty-five long years exactly, both in Canada and the States, there has been waged a campaign of education to arouse the people and their representatives to a conception of the need of a conservative use of their timber resources. It was in August, 1882, that the first American Forestry Congress met in Montreal, having adjourned from its first session called at Cincinnati, Ohio, in April of the same year. But even to-day there is hardly yet a real practical beginning of a surely established, definite forest policy to be found in any of the government administrations.

The writer may be allowed to speak feelingly on this score, having from its inception been actively in the movement for the establishment of forest policies, and having formulated and strenuously advocated during this long campaign the three first steps that are necessary—namely, the establishment of state forest reservations, providing a technical administration for the same, and in connection with such administration an efficient forest-fire service. The steps themselves have been taken in various States, but so short were they and so feebly supported financially that the effect so far has been hardly noticeable.

While in the States the Federal Government was after much arduous campaigning persuaded to adopt the policy of forest reservations in 1891, when a gradual withdrawal of public timber lands from disposal and entry was inaugurated, the survival of the policy hung often by a slender thread until very recent times, and a real forest administration of the now around one hundred and fifty million acres of national forests—almost entirely located in the West, and comprising probably not more than 50 per cent of commercially valuable timber area—has only very lately been inaugurated. Meanwhile the best timber in the West had fallen into private hands, and in the East, where the timber is wanted, where the bulk of the forest area, as well as of the population, is located, the reckless slaughter and waste without regard to the future has been allowed to go on, until now the time of exhaustion of virgin supplies can be fairly closely predicted to be due within the next twenty-five years.

There have, to be sure, feeble attempts been made in various States to forestall disaster, pitiably inefficient when the enormous interests involved and the gravity of the almost certain exhaustion of natural timber supplies within a short time are considered, and we can only be more hopeful for some further development, because a beginning has been made.

Commissioners and commissions have been appointed in various States to make reports on what should and could be done to stem the destruction and prepare for the restoration of timber supplies, but wherever actually a response to the recommendations was secured the means employed were too feeble to prevent the former and too inefficient to secure adequate results in the latter direction. For instance, the latest State to move in the matter of taking care of its important timber interest, Alabama (whose annual lumber output is valued at $15,000,000), appropriates $500 for carrying out the provisions of the act providing a commission with various duties. The great State of Minnesota, whose forest products in one year approach in value $45,000,000, devotes less than $12,000 to its forest interests, and $20,000 on prairie planting. The State of Maine, which still cuts around one billion feet, and is indebted to the forest for a product of $18,000,000 in value, keeps within the modest sum of $25,000 to pay for the protection against fire and the support of a commissioner. Examples of such picayune and inadequate measures are found in many other States.

The only two States which have not hesitated to spend money for forestry purposes are New York and Pennsylvania. The former, in purchasing forest lands for a preserve, which now comprises about one and a half million acres only, has expended millions of dollars, and is annually appropriating money for further purchase, besides liberal provision for its forest, fish and game commission. But, alas, the policy of forest reservation which had begun on economic grounds, has degenerated into providing a pleasure ground—a park—for the wealthy, and there is little consideration to economic forest questions given by the State or the commission.

Pennsylvania is the only State which can be said to have started on a true policy of cupereration, buying up waste lands, protecting them, and in a small way beginning

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to reforest them, an appropriation of about $500,000 being at the disposal of the forest commission.

Another State, Wisconsin, although not as yet spending large amounts of money, has, within the last two years, organized a strong, nonpolitical commission to develop a forest policy for the State, which includes, under the charge of a technically educated nonpolitical state forester, an efficient forest-fire service, the establishment of forest reservations, and the control to a large extent of the development of the water powers of the State—a most important function.

In educational directions perhaps the greatest progress has been made by the institution of forestry colleges and chairs of forestry at a number of universities and agricultural colleges. While many of them are poorly equipped, and it would have been wiser to improve quality in a few rather than increase numbers, yet a powerful stimulus is furnished in these institutions for a more rapid progress in the future, namely, by creating a class of technically educated men, without whom the carrying out of any forest policy would be almost impossible, or at least considerably hampered.

What can we say for Canada? Have any measures been taken which insure a continuance of one of her foremost natural resources as a permanent source of supply and revenue? I am afraid no well-informed Canadian will consider that whatever has been done is adequate to the needs.

The Dominion government, as far as it could, may be said to have advanced the most. It has set aside in its domain of over 2,500,000 square miles some 10,000,000 acres or more as forest reservations, but it must not be overlooked that, while this is an important action for insuring local wood supplies and preserving satisfactory waterflow and cultural conditions, it has, with the exception of a small area reserved in British Columbia, nothing to do with the question of commercial timber supply, for the reservations are located in the region where practically commercial timber is absent, and only domestic needs can be supplied. Similarly, while the Dominion government's policy of encouraging tree planting on the prairies and plains is most commendable, and may lead to make life in the treeless country more pleasant, this has no bearing on the grave question of future timber supply, for such timber supply can only be produced in the natural forest country.

Not only has the Dominion government engaged in these works of betterment but it has organized and maintains a separate office for the protection, by a ranger system, of the reservations, and for the investigation of the conditions of its reservations with a view of formulating plans for their best management. We can say the beginning is made for a proper policy. But, I repeat, this has no bearing on a timber supply for the arts.

The only other direction in which the Dominion government can perhaps be helpful is in the regulation of export tariffs. In solving this problem, to be sure, complications with other political and economic interests can hardly be avoided, and these naturally dictate a cautious attitude.

Academically speaking, it would appear the proper policy to retain an exhaustible raw material for home use and home manufacture, especially when by such culling of pulp wood the resource providing it would be liable to lose its value as a whole, as it undoubtedly would, due to the almost unavoidable destruction of the remaining timber by fire following such culling.

Perhaps in the light of the late utterance of the President of the United States regarding the plight of the American paper manufacturers, Canadians will wake up to the realization that they have something worth keeping, not only in their pulp wood, but in other timber supplies. I should not have said "worth keeping," but worth taking care of and managing for continuity; i. e., applying forestry principles.

Whether this new interest should take shape in the form of tariff legislation or had much better be fostered by regulating the use of crown timber lands conservatively is a matter for consideration. Personally, I am very doubtful whether tariff regulations can be made effective in securing conservative use of the timber resource. The import tariff imposed by the States has had no effect one way or the other, and I doubt whether export duties would have a very beneficial effect in the long run, so far as conservative forest use is concerned. Stopping export entirely might have such an effect, although even this appears doubtful, but a mere duty would not long be effective, for such rapid rise of prices for wood products will, it may be confidently expected, presently take place as to offset any discouragement which an export duty may for awhile exert on the decimation of supplies and unconservative treatment.

But this question of the proper regulation of the use of pulp woods is a most serious one, and may not be dismissed offhand without most careful analysis and deliberation. Canada could and should be the paper manufacturer of the world. Her best statesmanship needs to be applied to make sure that it secure and maintain that position.

The long-time element involved in the production of wood crops will always be an inducement to private enterprises to realize as much as possible in the present, leaving

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the future to take care of itself, or to be taken care of by the only agency that can have an interest in the distant future, the people's representative, the government. I have, therefore, presistently laid stress, first of all, on the proper policy in handling government timber limits, in introducing forestry principles into their administration, as the only promising and lasting solution of the problem. What have the provincial governments, who administer the commercially valuable crown lands, done in this direction?

In British Columbia the entire absence of a conception that her timber resources are a valuable asset, to be managed for a continuous future, is attested by the fact that timber limits are practically still given away, or at least speculation in them is invited by the method in their disposal. No government agency is charged with the management of the public timber lands except to send them to the slaughterhouse and secure the cash. Fire protection is a subject of statutes, but hardly carried out in the woods.

The Maritime Provinces have made feeble attempts, after the horse was practically stolen, to introduce at least a system of fire protection of the remaining fillies. How far this is effective might be found out by statistics of expenditure ($2,000 in New Brunswick) and results. As long as there is no special agency in charge of such service, it will, as has been experienced in the States, fail largely to be effective.

Quebec has embarked on a reservation policy, and during the last year has increased its forest reservations to the respectable area of over 100,000,000 acres, or 165,000 square miles.

A fire-ranging system has been adopted, and what is to the purpose and promises well for a rapid development of a forestry policy, a special office to take charge of forestry matters is in existence, the forest protection branch—a hopeful beginning.

Ontario deserves recognition for having first introduced a fire-ranger system which has formed the model for the other provinces. But so long as the protection is only partial and rarely extends to the young growing timber, the interests of the future are but scantily taken care of in this service. Out of the 50,000,000 acres which could advantageously be set aside as timber reserves, so far only 10,000,000 acres have been placed in forest reservations, and so far no attempt is made to administer them from a forestry point of view.

The timber limits are handled very much in the same manner as those of other provinces, namely, for fiscal results; but lately some innovations have been made in selling at flat stumpage rate per 1,000 feet, and introducing a diameter limit to which licensees may cut, probably to little purpose.

A very laudable beginning has been made in farm forestry by encouraging forest planting of waste lands on farms through free distribution of plant material, under advice as to its use, the Guelph Agricultural College acting as an agency for this service. But when it is stated that not more than $4,000 is being so far devoted to this purpose, that 400 to 500 square miles in areas of 3,000 acres and over of such waste lands can be located in the province, not forgetting that hardly any measures are taken to husband the actually growing crop of virgin timber, and hence that the waste area is continuously increasing, the inadequacy of the undertaking will have to be admitted.

That no established special government agency exists to take care, even nominally, of the forestry interests of the province is certainly regrettable.

The most promising and perhaps the most urgently necessary step which the Ontario government has taken, through its university, is, in my opinion, the establishment of a faculty of forestry, where young men may receive a comprehensive technical education in the art of forestry. Without such men, whatever policy of forest management the government might wish to inaugurate, it would be hampered. The very rapid development of federal forest administration in the States during the last five years, as compared with the previous twenty years, is, to be sure, largely a result of the preparatory work done by propagandists, but still more due to the availability of trained foresters, the absence of whom had retarded the earlier efforts.

The whole forestry question resolves itself into this: Shall the present generation forego something for the sake of the future? The people themselves will have to decide this—wherever the government is or is supposed to be an expression of the will of the people. An elected government which can not consider itself secure in its position for any considerable time can hardly be expected, for the sake of a distant future, to make sudden changes in established policies which, by necessity, must antagonize some private interests.

It takes a statesman of unusual power to not only foresee future contingencies, but to provide for them in due Season. "Sufficient unto the day are the troubles thereof," is the natural position to take. This undoubtedly is the reason why all the democratic governments of the States and of Canada as well have moved so slowly in this matter.

In Germany a hundred years ago a real timber famine existed, for then wood was the only fuel, rivers the only means of transportation, and the wood along the rivers had

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been cut away, and forest devastation, as with us, had wasted much. It was then that the modern forestry systems took their origin, having before that time been only indifferently and locally developed. It was then that the governments instituted strong organizations to administer the timber lands, and by "foregoing present revenue and making present expenditures," prepared the results which they are now reaping.

The state forests have now, through a hundred years of patient work, been brought into a condition which compares favorably with the results from agricultural soils; they produce annual revenues of millions of dollars, not by cashing capital, but by using interest—the amount of annual growth, which the same area can produce forever.

Thus, from less than 7,000,000 acres, the Prussian Government secures a net revenue which, increasing for years, amounted in 1905 to over $17,000,000, a result of an expenditure on the management of $11,000,000 annually. Compare this with the revenue which Ontario derives, say, $2,000,000 from 12,000,000 acres under license—leaving largely a waste.

Of course economic conditions, labor cost, and wood prices are different, and references to European conditions are valuable only when read in the light of the history of their development as foreshadowing our own development at a different tempo, but unfailingly in the same direction.

During the pioneering stages and while there was plenty, extensive methods of using resources were perfectly justifiable, but I believe present conditions of economic development and especially conditions of wood supplies in sight all the world over require the introduction of more intensive methods. These cost in the beginning but pay in the long run.

B. E. FERNOW.

POSITION OF SENATOR WM. C. EDWARDS, OF THE CANADIAN PARLIAMENT, AS TO FUTURE POLICY OF UNITED STATES AND CANADA.

ROCKLAND, ONTARIO, CANADA,
December 17, 1908.

Hon. JAMES R. MANN,
United States Congress, Washington, D. C.

DEAR MR. MANN: * * * You will recall that I promised to send you a Canadian newspaper, in which appears a letter written hurriedly by me a little over a year ago upon the pulp-wood question, and also a copy of telegram sent to Sir Wilfrid Laurier in June last, protesting against the possible imposition of an import duty on American lumber coming into Canada.

In the letter in the newspaper no names are used, but it is really in reply to a series of letters written about that time by Sir William Van Horne, who is largely interested in Canadian pulp and paper mills, and also in reply to a great agitation got up by our newspapers to the effect that the great denudation going on of Canadian forests to supply American pulp mills would at no distant day have the effect of very much enhancing the price of paper in this country. Our newspapers were wild on this subject about a year ago, but have been much more passive of late.

The telegram was sent following the day that all the important lumbermen in Canada, from the Atlantic to the Pacific, had waited on the prime minister and minister of finance, going on their knees for a duty on American lumber. I, of course, could not join such a deputation, and mine was the only protest.

I am aware that my telegram was read to the full cabinet council. What effect it had I do not know. But in any case the duty did not go on.

We are annually getting more or less lumber from the United States. This season southern pine poured into our country most freely, much more so than ever before, and produced so very much more cheaply than it is possible for us to produce. It affected our business most seriously. My own business was completely knocked out by it, but the large consuming masses, who buy and use the lumber, certainly were not hurt, and we will survive the temporary injury, which in the end will be no injury, but a great benefit, for if the American people are foolish enough to denude their

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forests for our benefit, while our timber is allowed to grow and become more valuable, we certainly will be the winners in the long run.

I am one of the stoutest advocates of forestry and the preservation of our growing timber, and a staunch supporter of every measure having for effect careful and proper cutting of our timber, but am unalterably opposed to any law restricting the sale or disposal of the article once it is produced. Just as I am opposed to all and every restriction of trade between your great country and our young, but somewhat progressive, country. I am afraid you have in the past underestimated our possibilities, but I may frankly tell you we are yet to be a factor in the world's commerce and affairs. We are your third largest customer to-day, and we are yet destined to take a more important place.

For the good of your country and for the good of ours there should be no barrier of trade between us any more than there should be a barrier as between New York and Pennsylvania, or as between the Provinces of Ontario and Quebec.

I am quite aware that children think they want protection, and interested knaves cherish it. But no broad-minded, capable, thinking man, who has ever given earnest thought and consideration to the subject can for a moment support such a suicidal policy. The greatness of the United States is more than anything else due to the fact that it has enjoyed through its interstate trade of its many great States the greatest freedom of trade the world has ever known. Its only means of achieving still greater results is to apply the same doctrine to its world's commerce.

Our country is also hampered and retarded in its growth and development by the iniquitous system of protection. Not so aggravated as yours, but quite bad enough. I earnestly wish we were free of it. We will come to it in time, but in my judgment you will precede us. I look for the great United States becoming the leading free-trade country of the world, and we will be followers. We will be forced by your action. Let us hope you will not too long delay this happy and much-to-be-desired result.

I am a liberal and a staunch supporter of the present Canadian government, but I am somewhat of an independent thinker and actor, or what may be termed "a free lance." I always say what I think when called upon to give expression to my views, and what I have said herein you are at liberty to use in any way you please.

Thanking you most cordially for all your kindness and attention on my recent visit to your great capital city.

Believe me, most sincerely, yours, WM. C. EDWARDS.

[Telegram.]

ROCKLAND, ONT., *June 27, 1908.*

Right Hon. Sir WILFRID LAURIER,
Ottawa, Ont.

Most sincerely and earnestly hope you will pay no regard to unjustified demand made upon you for a duty on southern pine coming from United States. The demand arises in consequence of a temporary stagnation in our business which will soon pass away. The imposition of the duty would be most trifling in so far as mitigation of the present dullness in Canadian trade is concerned, and would be most unpopular excepting with a few avaricious lumber manufacturers. I sincerely beg of you to allow one Canadian industry to exist without placing it in the dishonorable and despicable position of robbing the consumers of its product for its benefit.

WM. C. EDWARDS.

Letter in Montreal Daily Witness by Senator William Edwards, of Canada, referred to in his letter of December 17, 1908.

THE PULP-WOOD QUESTION.

To the EDITOR OF THE WITNESS.

SIR: I notice that of late you have opened your columns in an impartial way to a consideration of the pulp-wood question, which is being agitated by the Canadian pulp and paper makers and a number of our newspapers.

Your attitude seems more one of inquiry as to the true merits of the question than of partisan support of the views put forward by those advocating an export duty or absolute prevention of export, for there are those who advocate even the latter extreme position.

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In your issue of the 19th instant you set forth the views of the restrictionists; but suggest that after all their opinions may not be prompted entirely from patriotic motives; that self-interest may possibly have some influence; that there may be something that might be said on the other side of the question by pulp-wood producers and sellers; and you invite a statement of their views.

I approach this subject with some hesitancy. First, I have neither the time or disposition for newspaper controversy, and next I am not exactly of the class from whom you invite a discussion of this matter, but am a lumber manufacturer, making plans and inquiry at the moment to embark in the near future in pulp and paper manufacturing also. At the same time I am unable to share the views of those who would hinder or restrict the export of pulp wood. I will admit at once that I am a radical free trader, believing in no restrictions or hindrances to trade, and no penalties imposed on the many for the enrichment of the few. But, apart from the question of trade principle, this subject is a large one, and one of the greatest importance to Canada, and more particularly the Province of Quebec, which possesses by far the greater areas of spruce timber and most numerous water powers, which, if conserved and well administered, will place the Province of Quebec at no very distant day in a position as a manufacturing province which will be the envy of all the States and Provinces on the continent. The competition will be as between power produced with coal at a cost of $45 to $60 per horsepower per annum or electrical power produced by water at $15 per horsepower, or possibly less; and as coal is a diminishing quantity, and as the water powers will go on for ever if not destroyed by denudation of the forests there can be but one outcome, viz, the supremacy in manufacturing of the country which owns the greater share of water powers. In this particular Canada is supreme, and Quebec is by far the most fortunate of our Canadian Provinces, being richer in water powers than any other. So that, in my opinion, the subject is one to be dealt with on broad principles.

The general welfare of Quebec is the question and not that of individuals or sections. The Province has adopted the policy of placing its timber areas under license to lumbermen to cut the timber under certain regulations. Legitimate farmers own on their farms more or less spruce timber. There are a limited number of pulp and paper mills scattered over the Province. Any restriction to the exportation of pulp wood would circumscribe the market, and place the lumberman or farmer who has pulp wood to sell at their mercy. This is the condition those interests are asking for, and to promote what they have in view they have got certain of our newspapers worked up to a frenzy in the fear that in a few years our pulp-wood resources will be exhausted, and that there is not only the danger of dearer paper, but an exhaustion of the raw material for its production at no distant day.

It is set forth that the American supply of pulp wood is nearly exhausted, and that unless the paper-making interests of that country are hindered they will gobble up our entire pulp-wood resources in a very few years, and they are greatly exercised as to the future of our forests. While not among those who believe that the American supply of wood for paper making is so nearly exhausted as many think it is, I at the same time believe that they are overbuilt in pulp and paper mills relative to their supply of raw material, and that it is a convenience to get a portion of their pulp wood from Canada—a most decided advantage to the small-limit holder and to the farmer who has pulp wood to sell. We have, however, among us those who would cut off this market. Again, we have those who believe that the paper mills of the United States can be transplanted to Canada at once if only the supply of pulp wood is cut off, and they would have our legislators proceed at once to enact such laws as would bring about these results. I can not think that any fair-minded unselfish Canadian understanding the question could support any such legislation. Canada may have, and I think she has, the greatest supply of pulp wood of any country; but there are other countries which have large quantities of the article, and it will be many years before the world will have to look exclusively to Canada for its supply, and the erection of pulp and paper mills in Canada faster than they are now being built would be simply suicidal to the paper-making business in Canada. Our market is a limited one. The only market freely open to us, Great Britain, we can not sell in profitably to-day. We can sell Great Britain pulp, but we can not profitably sell her paper. The foreign sale of mechanical pulp is an undesirable business. I admit at once that the desirable article for us to sell is not the pulp wood nor the pulp, but the finished article, paper, and I will be greatly pleased when we are in a position to do it; but we are not in that position to-day.

We can not sell in Great Britain to-day, because of cheap and convenient Scandinavian and north of Europe pulp going into the British market at much lower rates of freight than we can supply it, and also because of the perfection of manufacture

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and the cheaper capital invested in paper making in Great Britain. I have just investigated the matter at considerable expense, and am surprised at the conditions. One of the most perfect paper-making mills in the world is to be found near Paris, in France. But Great Britain is high up and almost supreme as a paper-making country, and under her open-market conditions just so long as her present supply of pulp continues we can not hope to invade that market to any great extent in the sale of paper. The people of the United States being under tariff tyranny, we can not at present find a market there, but in due course both these markets will be available to us in a natural way; and until they are, what is the proper course for Canada to pursue? In my opinion, the proper business course is to carefully husband our timber resources; but the proper way to manage this is not by the limitation of the sale of our timber limits, and not by the restriction of the sale of the lumber produced in any form which the producer wishes to sell it in. He should be a free man, to sell it in such form as he pleases and where he pleases. But the great and important question is the administration and management of our forest areas. In pine the Province of Quebec can not hope for a continuous supply; it will become exhausted far too soon. But the spruce areas of the Province need never be exhausted if only rational means are adopted and enforced. The question should not be where or how the timber shall be sold when cut. The question should be what shall be cut.

Now, what are the facts? In the best interests of our spruce forests and their conservation, is it that too much of our timber is being cut annually? Not at all! It is that it is not being properly cut. I think it is reasonably safe to say that more timber dies annually in the Province of Quebec than is cut down by the woodman's ax. The question then is "Will this process exhaust the forest?" By no means. From sixty to seventy years is about the life of a spruce tree, and under these natural conditions reproduction goes steadily on. Then how is it that the forests are being exhausted? The answer is: By forest fires caused mostly by squatters on the limits; by camping parties, fishermen, hunters, and recently by explorers for minerals; also by the passage of railways through or near the timber areas, and by settlers on land, both legitimate and illegitimate. One most fruitful source of destruction, I admit at once, is the pretended settler buying or pretending to buy land for settlement which in reality is intended for himself or some pirate lumberman to cut upon, smuggling off the timber, robbing both the limit holder and the Crown. And as under these circumstances there is no limit to the size of cutting, the territory so cut is exhausted entirely.

I quite admit that the high price of pulp wood in the last few years has greatly stimulated this means of devastation. But is the cure in restricting in any way the disposal of the article produced? By no means. The cure rests in a proper administration and regulating of cutting on our crown lands, and in guarding against in every possible way forest fires.

Having said all this, I may very well be asked, then, what would your plan be for the preservation and perpetuation of the forest resources of the Province of Quebec? My answer is that two interests for the future of Quebec are paramount, the preservation of her forests and of her water powers. Take care of the former and the latter will take care of itself. Destroy the first and you destroy the latter. Then the question is: Can the latter be preserved? I say, yes; decidedly, yes. Instead of restricting the operations of the area to be lumbered upon, encourage the operation of lumbering all over the province as soon as it practically can be done. Every square mile of the timber area of the province should be operated, thereby allowing no timber to die of old age, but, instead, cutting the old timber and cut no timber whatever under a regulation size to be determined upon. The determination of the smallest diameter of cutting to be ascertained by such an inquiry as would establish the annual growth on a fixed area. Separate the lands only suitable for timber production from the lands suitable for agriculture, and allow no encroachment of settlement dangerously near to the timber areas. Build no railways through timber areas.

True, with all these precautions there will be some forest fires. In time spruce areas so destroyed will reproduce, and if only the annual growth is cut on the timbered areas, and no more, I think it will be agreed that our forest resources will go on in perpetuity and never will become exhausted. It is in this manner, and in this manner alone, that the remedy can be applied, and not in export duties or in any such restrictive measure; and it does appear to me that a consideration and adoption of this plan is one more to be considered by the Canadian people than tariff wars or anything of the kind.

WM. C. EDWARDS.

ROCKLAND, ONTARIO, *October 24.*

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GENERAL OBSERVATIONS ON AVAILABLE WATER POWERS IN ONTARIO AND QUEBEC.

Before the Canadian Forestry Association, in convention at Ottawa on January 10, 1906, a paper entitled "The relation between water powers and forests" was read by Mr. Cecil B. Smith, chairman Temiskaming railway commission. It is published in the seventh annual report of the association, pages 64 to 68. Certain extracts are taken:

Canada is well supplied with coal, both in the extreme eastern and western provinces, but over an area extending for 3,000 miles from New Brunswick to the foothills of the Rockies, and from the United States boundary as far northward as we have knowledge of a definite nature, there are no coal measures of importance that have yet been discovered.

* * * Now that wood for fuel has become scarce and expensive in many localities, there is a double drain on the pockets of the people, and a continually increasing stream of money is flowing across our southern border to purchase coal for heating and power purposes. * * *

At the present time there has been developed in Canada 350,000 horsepower of water power. * * *

Now, the near future will easily see this amount doubled and trebled if intelligent and comprehensive plans are adopted for development and distribution, and not only can a large amount of money be kept in our country, but industries and public utilities will be benefited by being supplied with electricity at reasonable rates. * * *

The practical problems of the control of river flow in the thickly settled parts of Ontario and Quebec provinces group themselves naturally into three districts, and will be treated separately.

(*A*) *Southwestern Ontario.*—In this district we have the Nottawasaga, Saugeen, Maitland, Ausable, Thames, Grand, Credit, and Humber rivers, all possessing originally valuable water powers, but without any natural storage for the water, except in the soil, so that as this whole area has been practically (about 86 per cent) denuded of forests and given over to agriculture the water powers have been nearly all ruined, and as the creation of artificial storage would be very expensive, and the country is too valuable as farm land to permit of it ever reverting to forest, little can be hoped for in the way of improvement, and the district will necessarily have to rely on Niagara as its chief source of electrical power.

(*B*) *Central Old Ontario.*—We find here an entirely different natural condition, and owing to this an exceptional opportunity presents itself for intelligent and comprehensive action, which will, if carried out, be of great benefit to future generations.

The French, Maganatewan, Muskoka, Severn, Trent, Moira, Rideau, Misssissippi, Madawaska, Bonnechere, Petawawa, and Mattawa rivers, with their sources in lakes and swamps, all rise from a common plateau, largely unfit for cultivation, still chiefly in forest, and much of it still in the hands of the Crown. They all possess excellent water powers, many even now near to industrial centers, and up to the present time developed only to a very limited extent. Much of this central plateau is still in virgin forest, but much more has been cut or burned over, and much partly cleared, on which thousands of families are eking out a meager and precarious existence on land which would be much better occupied if devoted to the growth of another forest of pine and other trees indigenous to the region. * * *

The question involved in this district thus presents two phases: One, the improvement of water powers possessing wonderful natural storage and amounting when developed to 200,000 or 300,000 horsepower, Trent River alone 65,000 horsepower, low water, 20,000 developed representing at least 1,500,000 tons of coal per year; and, on the other hand, the upbuilding of an extensive forest district naturally adapted to the growth of pine, but largely unfit for cultivation.

(*C*) *Southern Quebec.*—The Yamaska, St. Francis, and Chaudiere, with other smaller rivers, have their sources in the foothills of the Notre Dame or White Mountains and possess valuable lake storage, and while this district is largely arable and fairly well cleared there are considerable areas which it would pay to hold for all time as forest reserves in order to equalize the flow in the rivers above mentioned and at the same time prepare valuable forests against the time when timber will be in still greater demand than it is at present.

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WATER-POWER STREAMS IN THE PROVINCE OF QUEBEC.

The Settlers' Guide for 1907, prepared under direction of Hon. Adélard Turgeon, minister of lands and forests, gives the number of water powers in the province of Quebec, situated in various divisions or counties. In the Lake St. John and Saguenay region the water powers are numerous and large.

(P. 14.) The principal are those of the rivers Peribonka, Mistassini, Chamouchouan, Ouiatchouan, Belle-Riviere, Metabetchouan, and those of the Grande and Petite Decharge of the Saguenay.

Ascending the river Great Peribonka some 5 or 6 miles from its mouth, we encounter 7 waterfalls or cascades formed one above the other, and which could develop a motive force equal to 300,000 horsepower.

On the river Little Peribonka, waterfalls are found at the eighth, twelfth, fourteenth, sixteenth, twenty-third, and seventy-eighth mile above its mouth. The most important are the "Chutes Blanches," between the fifth and sixth ranges of the township of Dalmas.[a]

The cascades of the Grande Decharge can not, in truth, be called a great fall, but, by means of damming the river, it would be easy to obtain a motive force of 15,000 horsepower, according to estimates which have been made of it.

The river Metabetchouan, along the first 10 miles of its course above its mouth, gives 3 rapids and 1 very high fall.

In ascending the river Mistassini, the first falls are seen about 24 miles from its mouth; there are also cascades and large hydraulic powers 11 and 16 miles above the first mentioned, and at the one hundred and twentieth mile from its mouth. One of these cascades or falls is 80 feet high.

The first falls of the river Mistassibi are about three-quarters of a mile above its confluence with the Mistassini and 20 miles from Lake St. John. The first of these falls are designated under the name of Chutes des Peres and are 45 feet high.

In the 34 miles of its course the Mistassibi forms six other falls. (P. 15.)

The Riviere aux Rats, also a tributary of the Mistassini, in the first 7 miles above its confluence with the latter river forms falls of 30, 40, and 60 feet in height, capable of furnishing to manufactories a force of 125,000 to 150,000 horsepower.

A short distance above the village of St. Felicien—that is to say, about 15 miles from Lake St. John—the river Chamouchouan contains cascades and falls of great size. It is calculated that in the 50 miles of its course the hydraulic force of this river would easily produce 300,000 horsepower.

We also meet with very large water powers in the counties of Chicoutimi and Saguenay, notably those of the river Chicoutimi, au Sable, Shipshaw, Saguenay, Portneuf, Ste. Marguerite, Grande Trinite, Petite Trinite, Escoumains, Sualt-au-Mouton, Bethsiamis, aux Outardes, Manikuagan, Pentecote, aux Rochers, Marguerite, Moisie, Natashquan, etc. Some of them are already employed by large manufacturing establishments. * * *

(P. 22) All the immense territory of the Ottawa is watered by large rivers, of which the following are the principal:

	Length in miles.		Length in miles.
Kepewa	75	Du Lievre	210
Du Moine	85	Petite Nation	55
Noire	90	Rouge	125
Coulonge	110	Du Nord	60
Gatineau	225	L'Assomption	80

These rivers, without excepting the great river Ottawa itself, furnish good water powers and excellent channels for floating timber.

Some of the great hydraulic powers furnished by the river Ottawa are worthy of more than passing notice, particularly "Les Chutes des Chats" and the no less celebrated "Chutes du Grand Calumet."

(P. 23) "Les Chutes des Chats" are found 4 miles from the Quyon station on the Pontiac Railway, the total power of these falls is set at 15,000 horsepower at the lowest estimate. The islands which separate these falls on the Province of Quebec side are generally large and their conformation favors the development of these water powers. For several years manufacturing industries have utilized some of them.

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[a] This hydraulic power is used by the Peribonka Pulp Factory.

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As regards the falls of the "Grand Calumet," their hydraulic power is very great, though some of them present certain difficulties to be overcome. We place the total power of all these falls (Calumet) at 6,000 horsepower.

Among the great water powers of the river Ottawa to be noticed are "Les Rapides de la Chaudiere," "Les Chutes et Cascades du Chenal du Rocher Fendu" south of Grand Calumet Island and north of the Allumette Islands, on the Chenal de la Culbute, the rapids of this name, and les Chapeaux.

At the western extremity of this part of the Ottawa River, called the "Riviere Creuse," we meet the falls and rapids of the Joachims, the rapids du Rocher Capitaine, of the Deux Rivieres, du Levier, and Mattawa.

The water power of the Joachims in front of the township of Aberdeen, in the county of Pontiac, is capable of furnishing a minimum of 13,000 horsepower.

The water power of the Cascades, on the river Gatineau, is calculated as equal to 40,000 horsepower, and the rapids of St. Joseph and Des Eaux, on the same river, at 7,700 horsepower.

The rapids of Mattawa and Johnson together will give 7,500 horsepower.

On the river Ottawa the water power of the Long Sault is estimated at 20,681 horsepower.

Of the region of the Temiscamingue there is no specific mention of the actual water power other than the following paragraph:

We also know that this region is watered by innumerable rivers, streams, and lakes of all sizes which form so many sources of power of which manufacturing industry should take advantage. Some of these water powers are most valuable. We might particularly mention the river Res Quinze, which alone has 15 cascades, the water powers of the river Keepawa, or the Gordon Creek, of the La Loutre, etc... (P. 29.)

On the St. Maurice region (p. 34) are the following paragraphs relating to water power:

This immense country, intersected in every direction by magnificent rivers and lakes, possesses the finest water powers in the world and is covered with forests of pine, spruce, and white birch. The principal water powers of this region are the Grand Mere and Shawenegan (already operated by powerful manufacturing companies); the La Tuque water power, from a fall of more than 20 feet in height; and the falls of the Grandes Piles, opposite the southerly extremity of the village of Saint Jaques des Piles. The minimum power of the latter falls is estimated at 23,000 horsepower.

The region of the eastern townships have a number of rivers and a number of water powers (p. 37).

The eastern townships possess not only sufficient means of irrigation for the crops, but also in places excellent water powers. A good many of these are already utilized for sawmills and all kinds of manufactories.

The region of the Matapedia contains a number of water powers which are described on pages 48 and 49.

Moreover all this Matapedia Valley is abundantly watered by rivers and streams. * * * Almost everywhere may be found splendid water powers suitable for the working of mills and factories. The river Causapscal in the first range of the townships of Blais and Cassault forms several rapids and cascades capable of developing hydraulic power equal to 4,500 horsepower, and it would be easy to increase this power by the erection of dams at the discharge of the numerous lakes found at the head of the river. On the Matapedia River, at less than a mile from the Causapscal Railway station, we found a water power suitable to the making of force of more than 4,000 horsepower.

ESTIMATED WATER POWER IN ONTARIO AND QUEBEC.

A pamphlet entitled "Wood pulp of Canada," by George Johnson, statistician, department of agriculture, Ottawa (1901), on pages 25 to 30, contains some information as to the water power used and possible of development in the Provinces of Ontario and Quebec.

A short time ago an examination was made by the Ottawa Board of Trade into the resources of the region tributary to Ottawa. Estimates were obtained from sur-

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veyors, engineers, mill owners, and others possessing full knowledge. It was found that within a radius of 50 miles there was an available power of water equal to nearly 900,000 horsepower, the Ottawa supplying 664,000 horsepower, and its tributaries 226,225 horsepower; those on the Ontario side contributing 40,000 horsepower, and those on the Quebec side 186,225.

This estimate is based upon a low average of water obtainable throughout the year.

At the sources of the twelve or fourteen rivers, which together aggregate the 900,000 available horsepower mentioned, are great lakes that can be converted, by the construction of retaining dams, into immense reservoirs, by means of which the power can be increased. Estimating the value of the electrical horsepower generated by the use of water at $10 per annum, the water powers in the area described represents the sum of $9,000,000. Estimating the value of horsepower generated from steam on the basis of $25 per annum, it represents the great annual value of $23,000,000.

This power is all within such easy distance of the federal capital that it can be centered in Ottawa over a comparatively small number of miles of wire with a loss of only 8 to 10 per cent in efficiency.

Mr. Surtees, C. E., who has investigated this question for the Ottawa River, gives the following information of the capacity of this river and its tributaries to supply power:

ABOVE THE CITY OF OTTAWA.

	Horsepower.
Great Chaudiere, Ottawa City (not in use)	35,000
Little Chaudiere	25,000
Deschenes and Britannia	15,000
Chats Falls	141,000
Portage du Fort	49,000
Mountain Chute	62,000
Grand Calumet	186,000
Coulonge River	24,120
Black River	21,000
Mississippi River.	
Galetta	1,800
Pakenham	900
Blakeney	1,080
Rosamond's Rapids	720
Almonte	3,000
Appleton	540
Carleton Place	1,000
Innisville	540
Madawaska River.	
Arnprior Rapids	1,400
Burnstown	1,400
Springton Rapids	1,120
Calabogne Lake	3,640
Madawaska High Falls	10,360
Bonnechere River.	
Castleford Rapids	1,120
Renfrew and Douglas	2,000
Quyon River	80

TRIBUTARIES BELOW THE CITY.

Gatineau River.	
Fhrmer's Rapids	24,500
Caelsea Mills	47,790
Eaton's Chute	24,508
Cascades	14,000
Wakefield	12,000
Péugan Falls	73,500
Pache	375
Petite Nation River	1,600
Blanche River	1,600
Priests Creek	240
Little Blanche River	250
Clay Creek	120

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Riviere du Lievre.	Horsepower.
Buckingham	9,000
Rheaume Falls	4,000
Dufferin Falls	12,500
Upper Falls	12,500
Little Rapids	500
Cascades	2,000
High Falls	36,000

These figures give a total of 589,320 horsepower above the city of Ottawa and 269,683 horsepower below the city, all of which is at present unused—the total in use being 58,400, giving a grand total of 917,403 horsepower.

This estimate, as has been stated, is for water power within a radius of 50 miles of the city.

Beyond that no detailed estimate has been provided. Mr. Andrew Bell has estimated the aggregate water power available between Ottawa and Mattawa (200 miles) at 1,476,000 horsepower.

The engineers of the projected Montreal and Ottawa and Georgian Bay Canal estimate the water power developed along the route of the canal at 700,000 horsepower.

On Sturgeon River, emptying into Nipissing Lake, and, therefore, tributary to the projected canal, the power available at Sturgeon Falls, Smoky Falls, and one or two other points, is approximately 50,000 horsepower, part of it being utilized by the Imperial Paper Company, already mentioned.

On the Montreal River there is a 150-foot fall within the first 3 miles and a 180 foot of a fall in the distance to Lake Temagami.

All this immense reservoir of power is included in 300 miles of a river which is over 600 miles long.

Still further, the building of the dams proposed in connection with the Montreal, Ottawa and Georgian Bay Canal, it is calculated will increase the power between Sturgeon Falls and Montreal by 500,000 horsepower, which is equal to the amount developed on the United States side of Niagara Falls.

Take another locality. The deep and somber River Saguenay acts as the drain of Lake St. John. This lake is fed by many rivers and streams. These are fine reservoirs of power. Beginning on the east side the Peribonka River is navigable for a dozen miles from the lake. Then come the Grand Chutes. For 5 or 6 miles the waters of the Peribonka rush through these chutes by a series of waterfalls capable of supplying a force of 300,000 horsepower, which can all be harnessed to do the world's work at an expenditure of a comparatively small sum of money—comparatively, that is to the cost required to secure the force utilized at Niagara Falls of but one-sixth of the horsepower capable of being employed in the falls of Peribonka River.

The Mistassini River is another of the feeders of lake St. John. On it, within 24 miles from the lake, there are two falls not far from each other. These taken together can supply a force of 40,000 horsepower.

One of the affluents of the Mistassini River is the Mistassibi. Its waters pass into the parent river by a succession of cascades whose collective force is estimated at 75,000 horsepower.

Another of the tributaries of the Mistassini is the River of Rats. The waters of this river mingle with those of the Mistassini by means of two cascades of 30 feet and a waterfall of 60 feet; estimated to be able to supply a force of 22,000 horsepower.

Perhaps the largest tributary of the Mistassini River is the Assiemska, whose rapids and cascades are of such a character as to warrant the statement that several thousands of horsepower are there waiting to be set to work.

It is safe to say that there are, north and east of lake St. John, within a sweep of 20 miles, not less than 150,000 horsepower.

The river Chamouchouan, which is considered to be the upper part of the Saguenay River, falls into lake St. John south of the Mistassini. It can contribute as its share of the water power of the favored region not less than 100,000 horsepower, supplied by several cascades, and especially by the falls of the Chaudiere, which have a height of 120 feet.

The river Ouiatchouan has a length of 60 miles, and in reaching the lake St. John widens into several lakes, of which the most important is the Lac des Commissaires, which is a lacustrine expansion of 21 miles in length. At a couple of miles from its mouth the river has a fall of 230 feet high, capable of providing a force of 33,000 horsepower.

The Metabetchouan, in a distance of 80 miles (125 kilometers), has a descent of 225 feet—the greater portion of which is accomplished by means of cascades and rapids—within a distance of 4 miles.

Here, then, in the single region of which the basin of lake St. John is the great water reservoir, are rivers and streams having over 700,000 horsepower, capable of being utilized for manufacturing purposes. This, it is stated, is a power much in excess of that which could be supplied by the rivers of Norway and Sweden.

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DETAILED ESTIMATE OF WATER-POWER STREAMS IN ONTARIO.

WATER POWERS OF ONTARIO AS REPORTED IN 1906 AND 1907 BY THE HYDRO-ELECTRIC POWER COMMISSION OF THE PROVINCE OF ONTARIO.

On the 26th day of January, 1906, a commission was appointed by the provincial government to investigate and report on, among other matters, "the location, capacity, and capital cost of development of the various water powers within the legislative jurisdiction of the Province of Ontario at present undeveloped * * *." A systematic tabulation of the water powers of the rivers, based upon gaugings and meterings, supplemented by information derived from other sources, was made by a corps of engineers. The province was divided into districts, and, with the exception of the James Bay watershed, the whole territory was covered. The results of the investigation are reported as follows:

In the district which may be described as southwestern Ontario, south of the latitude of Toronto, there are a large number of rivers possessing small water powers, most of which are already developed; but owing to the small heads obtainable and the extreme low-water conditions they are usually of small capacity and suitable only for the most local uses, for small mills, village electric-light stations, etc., and are not suitable for the supply of any great quantities of power, which might be available for transmission or even extensive local use.

The following is a partial list of these water powers:

Stream.	Developments.
Lynn	Port Dover.
Grand	Dunnville, York, Caledonia, Brantford, Paris, Galt, and Elora.
Nith	Paris, Ayr, and New Hamburg.
Speed	Preston, Hespeler, and Guelph.
Credit	Georgetown, Norval, and Erindale.
Thames	London and Springbank.

And various other smaller streams.

The developments now partially completed are capable of more than meeting any demand for electric power likely to arise in Ontario in the near future, having some 150,000 horsepower capacity immediately in sight with permanent works designed for 425,000 horsepower 24-hour power, in which, from time to time, machinery can be installed to meet requirements as they arise.

Water powers on the Moira River and tributaries.

Location of water power.	Total head.	Estimated power at low water.	Power now developed.
Belleville:	*Feet.*	*Horsepower.*	*Horsepower.*
First dam	.....	300	110
Second dam	6	.....	110
Undeveloped	15	550	.....
Third dam	9.4	340	65
Fourth dam	8.6	320	50
Fifth dam	8	300	50
Chisholm's Mills	10	370	.....
Lost Channel	.....	33	.....
Tweed:			
Old electric-light plant	10	230	.....
Deseronto Milling Co	10	230	100
Electric Light Co	9	200	100
Undeveloped power	6	140	.....
Glen Lewis	8	60	.....
Actinolite	30	350	(a)
High Falls	35	410	(b)
Long Slides	5	550	(b)
Total	.....	4,900	585

a Partially developed. b Undeveloped.

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Water powers on upper Trent River.

Location of water power.	Total head.	Estimated power at low water.	Power now developed.
Peterborough:	*Feet.*	*Horsepower.*	*Horsepower.*
Peterborough Hydraulic Power Company	.....	3,200	3,200
Auburn Mills	12	1,100	680
Waterworks	10	900	70
Canada General Electric	15	1,365	1,400
No. 5 dam, Otonabee Power Company	14	1,280	1,700
No. 4 dam	12	1,100	(a)
No. 3 dam	12	1,100	1,350
No. 2 dam	10	900	(a)
No. 1 dam	12	1,100	640
Youngs Point	7	600	535
Burleigh Falls	25	1,800	(a)
Buckhorn Rapids	12	870	(a)
Bobcaygeon	6	300	300
Fenelon Falls	24	720	1,600
Elliotts Falls	21.5	930	930
Total	.....	17,265	12,405

a Undeveloped.

Water powers on Lower Trent River.

Location of water power.	Total head.	Estimated power at low water.	Power now developed.
	Feet.	*Horsepower.*	*Horsepower.*
Trenton	14	2,500	900
Rapids ¾ mile above Trenton	18	3,200	(a)
Glen Miller	9.5	1,750	600
Rapids 1½ miles above Glen Miller	18	3,200	(a)
Frankford	12	2,150	(a)
Trent Valley Paper Co	14.6	2,580	800
Chisholms Rapids	12	2,100	(a)
Rauneys Falls	35	6,100	500
Campbellford	9	1,550	500
Rapids	15	2,580	100
Middle Falls	30	5,200	150
Rapids	12	1,600	(a)
Healeys Falls	60	8,000	(a)
Hastings	7.5	1,000	475
Total	.....	43,510	4,025

a Undeveloped.

Water powers in southwestern Ontario, on rivers tributary to Lake Huron and Georgian Bay as far north as the French River.

Water power.	Head.	Estimated low-water flow.	Minimum 24-hour power.	Present installation.	Remarks.
Maitland River:					
Goderich—	*Feet.*	*Cubic foot-seconds.*	*Horsepower.*	*Horsepower.*	
Piper's	30	140	380	.....	Undeveloped; storage for twenty-four hours.
Black Hole	80	140	1,020	.....	Proposed development of Maitland R. P. Co.; storage for twenty-four hours.
Wingham—					
Lower dam	15	32	53	200	Electric light plant; steam auxiliary for five months.
Upper dam	10	32	35	130	Flour mill and pump-house; steam for five months.
Saugeen River (main):					
Southampton—					
Denny's dam	13	360	430	200	Saugeen Light & Power Co.'s development.
Possible development	40	360	1,310	.....	Dam to drown out Denny's good storage for twenty-four hours.

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Water powers in southwestern Ontario, on rivers tributary to Lake Huron and Georgian Bay as far north as the French River—Continued.

Water power.	Head.	Estimated low-water flow.	Minimum 24-hour power.	Present installation.	Remarks.
	Feet.	*Cubic foot-seconds.*	*Horse-power.*	*Horse-power.*	
Saugeen River (main)—Con.					
Rapids above Paisley	8	.....	180	.....	
Rapids 2½ miles below Walkerton.	10	.....	225	.....	
Walkerton: Truar's Dam.	10	250	225	500	Entirely developed.
Rapids above Walkerton.	10	.....	225	.....	
Maple Hill	9	.....	200	.....	Hanover electric light plant; entirely developed.
Hanover	.18	245	400	600	
Saugeen River, Locherbys Creek:					
Paisley, Kissick's dam	12	14	15	100	Paisley electric-light plant.
Chesley	10	14	12	250	Crook Bros., furniture; electric-light plant (limited daily use).
Rocky Saugeen River:					
Aberdeen	17	70	108	75	Durham electric-light plant.
Glen Roden	17	70	108	.....	Saw mill.
Hayworths Falls	31	70	195	.....	Markdale electric-light plant.
Hayworths Falls, possible	60	70	380	.....	Possible maximum development.
Traveston	18	70	110	.....	Flour mill.
Traveston, possible	50	70	310	.....	Possible maximum development.
Muddy Saugeen River:					
Dalgleishs rapids	40	.....	180	.....	
Durham—					
McKechnies dam	13	50	60	80	Flour mill.
Do	12	50	55	.....	Undeveloped; below mill.
McGowans dam	20	50	90	60	Flour mill.
Purdy's mill	15	30	40	.....	
Priceville	10	20	18	.....	
Sauble River, Sauble Falls	18	55	90	.....	Saw mill.
Sydenham River:					
Owen Sound—					
Woolen mill	15	25	35	140	
Electric light	33	25	75	125	
Saw mill	14	25	32	.....	
Inglis mill	37	25	84	.....	
Beaver River:					
Eugenia Falls	420	30	1,090	.....	Proposed development of Georgian Bay P. Co.
Eugenia Falls, included in above.	17	30	46	.....	Flesherton electric-light plant.
Nottawasaga River:					
Creemore	20	30	54	150	Gristmill and electric-lighting plant.
Lavender Falls	64	15	90	.....	Undeveloped.
Glencairn	25	32	72	.....	
Hornings Mills	60	10	54	.....	Gristmill.
Do	75	10	68	.....	42 feet developed.
Do	125	22	250	.....	2 miles below village.
Alliston	14	40	52	75	Gristmill; electric plant.
The Fishery	10	80	72	.....	Undeveloped.
Severn River:					
Port Severn	11	750	750	.....	
Little chute	10	710	650	.....	
Big chute	52	710	3,350	.....	
Ragged rapids	35	633	2,020	1,600	Orillia electric light and power plant.
Moon River:					
High Falls	60	630	3,300	.....	
Twin Falls					
Curtain chute	6	630	330	.....	
Seven Sisters rapids	20	630	1,100	.....	
Knife rapids	9	630	510	.....	
Annie Rooney rapids	8	630	460	.....	
Island Portage	15	630	860	.....	
Muskoka River:					
Moon chute	10	840	765	.....	
Bala Falls	20	840	1,530	.....	
Muskoka River, North Branch:					
Bracebridge Falls	51	330	1,530	1,025	Municipal and manufacturing.
Wolframs Falls	41	330	1,230	.....	
High Falls	44	330	1,320	.....	
Muskoka River, South Branch:					
South Falls	115	260	2,700	.....	
Catwoheys Falls	35	260	820	.....	
Seguin River:					
Parry Sound	15	100	140	240	Parry Sound Lumber Co.
Do	18	100	160	200	Electric-lighting plant.

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Water powers in southwestern Ontario, on rivers tributary to Lake Huron and Georgian Bay as far north as the French River—Continued.

Water power.	Head.	Estimated low-water flow.	Minimum 24-hour power.	Present installation.	Remarks.
	Feet.	*Cubic foot-seconds.*	*Horsepower.*	*Horsepower.*	
Maganetawan River:					
Rapids above Byng Inlet.	10	375	340	.....	
Chute	15	375	510	.....	
Farm rapids	49	300	1,500	.....	
Chute	6				
E. Snye dam	14	300	380	.....	
Mountain Portage	8	300	220	.....	
Canal rapids	18	300	740	.....	
Deer Lake dam	9				
Lower Burnt chute	38	260	900	.....	
Upper Burnt chute	30	260	710	.....	
Jacobs rapids	15	250	340	.....	
Ross rapids	7	240	150	.....	
Poverty Bay rapids	19	240	410	.....	
Ahmic Lake dam and Kneopfles rapids.	22	240	480	.....	
Maganetawan	10	140	130	100	Grist and saw mill.
Burks Falls	28	100	250	500	Knight Bros.
Maganetawan River, North Branch, Burks Falls.	23	40	80	.....	
French River:					
Dalles rapids	44	.....	.....	.....	
Recollet	7	1,600	1,000	.....	
Five mile rapids	19	1,600	2,750	.....	
Chaudiere	25	1,600	3,650	.....	
South River:					
Chapmans chute and rapids.	27	110	270	.....	
McNabs chute	43	110	780	.....	
Campbells chute	35				
Powasson chute	32	90	260	.....	
Ragged chute	22	90	180	.....	
South River Station	70	40	250	.....	
Sturgeon River:					
Sturgeon Falls	38	910	3,150	6,500	Imperial Paper Co.
Sandy Falls	8	910	660	.....	
Smoky Falls	28	840	2,140	.....	
Wahnapitae River:					
Secord Township	35	510	1,600	.....	
Do	37	510	1,600	.....	
Wahnapitae	54	440	2,000	1,065	Wahnapitae Power Co.

Water powers in St. Lawrence and Ottawa district.

Water power.	Lowest head (feet).	Estimated low-water flow (cubic feet-seconds).	Minimum 24-hour power (horsepower).	Present turbine installation (horsepower).	Remarks.
St. Lawrence canals:					
Galops—					
Cardinal [a] [b]	6	.....	.....	200	Edwardsburg Starch Works.
Iroquois [a]	14	.....	.....	40	M. F. Beach.
				20	Town of Iroquois pumping and electric plants.
Rapide Plat—					
Morrisburg	11	1,410	1,410	.....	Gibson lease, 60 horsepower.
				250	Town of Morrisburg pumping and electric plants.
				1,100	New municipal lease for electric power.
Cornwall—					
Mille Roches [a] [b]	20	.....	.....	2,700	St. Lawrence Power Co. Normal head, 28 feet.

[a] Head least in periods of high water in the river.
[b] These plants take water from an upper reach of the canal and discharge it into the river.

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Waters power in St. Lawrence and Ottawa district—Continued.

Water power.	Lowest head (feet).	Estimated low-water flow (cubic feet-seconds).	Minimum 24-hour power (horsepower).	Present turbine installation (horsepower).	Remarks.
St. Lawrence canals—Cont'd.					
Cornwall—Continued.					
Lock 20	8	1,400	1,000	.....	
Lock 19	6	1,400	760	.....	
Lock 18	7.5	1,400	950	800	Toronto Paper Manufacturing Co.
				50	Municipal pumping.
Lock 17 [a]	20	1,400	2,540	1,500 1,200 200	Canada Colored Cotton Company.
				80	Cornwall Street Ry. and Wm. Hodge flour mill.
St. Lawrence River:					
Galops, Cardinal, and Iroquois rapids.	15	170,000	232,000	.....	
Rapide Plat	11.5	170,000	178,000	.....	
Long Sault	40	170,000	618,000	.....	St. Lawrence River Power Co., Massena, N. Y.
Gananoque River [b]	21	190	365	50	Cowan & Britton.
				50	O. D. Cowan.
				100	The Skinner Co.
				150	Spring and Axle Co.
	14	.....	.....	250	Electric-light plant.
				65	Rolling mill.
				80	Ontario Wheel Works.
				50	Parmenter & Bullock.
				90	Toronto Bolt and Forge Co.
				60	Canada Cabinet Co.
				40	St. Lawrence Steel and Wire Co.
	7	.....	.....	95	Gristmill.
				20	Mitchell & Wilson.
				150	G. F. Jones.
				10	W. G. Gibson.
Ottawa River:					
Carillon dam	16	17,400	25,300	.....	Present dam and rapids below.
Long Sault rapids	43	17,400	65,300	1,200	Hawkesbury Lumber Co., head developed 8 feet.
Chaudiere Falls	35	11,500	36,300	3,600	J. R. Booth, 25-foot head.
				1,850	Ottawa Electric Co., 22-foot head.
				2,800	Ottawa Electric Co., 25-foot head.
				1,600	Ottawa Electric Ry. Co., 20-foot head.
				4,000	Ottawa Power Co., 25-foot head.
				4,000	Municipal pumping. 27-foot head.
				[c] 7,000	E. B. Eddy Co., heads 16–21 feet.
				[c] 6,000	Ottawa & Hull Power Co., head 27–35 feet.
Little Chaudiere rapid	7	11,500	7,300	.....	
Remous rapid	3	11,500	3,140	[c] 2,010	Capital Power Co.
Deschenes rapid	9	11,500	9,400	[c] 1,200	Hull Electric Co.
Chats Falls	38	11,100	38,400	.....	
Chats rapids	12	11,100	12,100	.....	
Portage du Fort	12	9,800	10,700	.....	
Calumet Island [d]	.....	9,800	.....	.....	
Roche Fendu	86	4,900	38,300	.....	Interprovincial channel, 13 miles of rapids.
Calumet Falls	55	4,900	24,500	.....	In Province of Quebec.
Mountain chute	15	4,900	6,680	.....	
Allumette Island [d]	.....	8,600	.....	.....	
Les Allumettes	13	6,600	7,800	.....	Interprovincial channel.
Paquets	9	6,600	5,400	.....	In Province of Quebec.
Culbute	21	2,000	3,800	.....	
Des Joachims	27	7,830	19,200	.....	
Rocher Capataine	41	7,130	26,600	.....	
Deux Rivieres	13	7,080	8,360	.....	
Trou	7	7,020	4,460	.....	
L'Eviellies	8	7,020	5,100	.....	
Rocky Farm	.....	.....	.....	.....	
Johnson and Mattawa	17	6,950	10,700	.....	
Les Erables Mountain	16	6,450	9,400	.....	
Long Sault	49	6,440	28,700	.....	6 miles of rapids.

[a] Head least in periods of high water in the river.
[b] All consumption on ten-hour basis.
[c] Developments in Quebec Province.
[d] The distribution of the discharge is uncertain and varies at different stages of the water. Certain existing dams at La Passe, Ontario, and at Culbute and Bryson, Quebec, now control the water levels above.

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Water powers in St. Lawrence and Ottawa district—Continued.

Water power.	Lowest head (feet).	Estimated low-water flow (cubic feet-seconds).	Minimum 24-hour power (horsepower).	Present turbine installation (horsepower).	Remarks.
Nation River:					
Cripler	12	15	16	200	Bishop & Son, flour mill and electric-light plant.
High Falls	40	25	90	.....	
Plantagenet	8	30	20	.....	Gristmill and woolen mill.
Rideau River:					
From Perth, 3 miles [a]	15	55	75	250	Electric light and power for Perth.
Tay River, 4 miles	10	55	50	250	
Smiths Falls	6	140	76	280	Electric-light plant.
	18	140	230	100	Woolen mills.
	17	.....	.....	300	Stove works.
	17	.....	.....	500	Flour and planing mills.
	15	.....	.....	800	Flour mill.
	13	.....	.....	400	Municipal pumping.
1 mile below Smiths Falls	18	140	230	500	Smiths Falls Electric Co.
Merrickville	26	215	505	.....	Possible development.
	12	215	235	120	Electric-light plant.
				100	Sawmill.
				70	Malleable-iron works.
				170	Flour mill.
				50	Woolen manufacture.
				50	Ploughs and stoves.
				120	Grist and saw mills.
				80	Furniture.
Andrewsville	11	220	220	250	Kemptville electric supply.
Manotick	10	363	330	750	Grist mills.
Black Rapids	10	370	330	.....	
Hogs Back	50	400	1,820	.....	Saw and planing mills.
Ottawa	40	400	1,450	100	Foundry.
Mississippi River:					
King	24	140	305	.....	
Otter	15	140	190	.....	
Island	38	140	485	.....	
Ragged	38	140	485	.....	
High Falls	72	140	915	.....	
Geddes Bros	15	140	130	.....	Grist mill.
Playfairville	15	150	200	.....	Sawmill.
Innisville	13	232	275	.....	
Carleton Place	12	250	272	.....	Possible development.
	8	.....	.....	200	Electric-light stations.
				250	Flour mill.
	8	250	182	.....	Possible development.
	7	.....	.....	70	Engines.
	7	.....	.....	200	Woolen mills.
Appleton	16	250	360	.....	Do.
Almonte	10	300	270	100	Flour mill.
				40	Flannel mill.
				30	Machine shop.
	51	300	1,390	500	Woolen mills.
	26	.....	.....	250	Municipal electric plant.
	22	.....	.....	190	Dress goods, etc.
	18	.....	.....	75	Woolen goods.
	14	.....	.....	150	Shoddy mill.
	7	.....	.....	100	Knitting mill.
Rosebank	23	320	670	.....	Woolen mill.
					Grist mill.
Packenham	18	330	540	.....	Flour mill.
Galetta	25	345	780	35	Woolen mill.
				80	Grist-mill privilege.
Madawaska River:					
Palmer rapids	17	635	980	.....	
Omo rapids	7	650	410	.....	
Snake rapids	30	670	1,820	.....	
Slate Falls	23	725	1,510	.....	
Highland chute	12	725	790	.....	
Camel chute and rapids	19	740	1,280	.....	Sawmill, 8-foot head.
Colton chute	18	750	1,230	.....	
Rapids	13	750	885	.....	
Deschenes rapids and rapids above.	29	770	2,030	.....	
Rapids	7	770	490	.....	
Cedar rapids	31	775	2,180	.....	
Mountain chutes	40	790	2,860	550	Electric plant for graphite mine, 20-foot head.

[a] Upper Tay controlled for use on Rideau Canal.

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Water powers in St. Lawrence and Ottawa district—Continued.

Water power.	Lowest head (feet).	Estimated low-water flow (cubic feet-seconds).	Minimum 24-hour power (horse-power).	Present turbine installation (horse-power).	Remarks.
Madawaska River--Cont'd.					
Norway chute	8	790	575	.....	
Chain rapids	15	810	1,100	.....	
The Ducks	16	830	1,220	.....	
Ragged chute	16	830	1,220	.....	
High Falls	78	830	5,960	.....	
Barret's chute	17	830	1,300	.....	
Calabogie rapids	20	860	1,560	.....	
Sixteen miles of rapids, Arnprior.	20	885	1,610	.....	Present dam dilapidated.
	18	.....	.....	200	Grist mill.
	9	.....	.....	75	Machine shop.
	9	.....	.....	75	Electric-light plant.
	10	.....	.....	300	Sawmill.
Bonnechere River:					
Rabitahi Cascades	405	20	730	.....	
High Falls	30	20	55	.....	
Eganville	14	105	135	300	Sawmill.
				120	Flour mill and electric plant.
				40	Sash factory.
	12	105	115	300	Flour mill and electric plant.
	12	105	115	.....	In process of development.
Fourth chute	46	110	460	.....	Possible development.
	15	.....	.....	700	Sawmill.
Third chute	21	110	210	.....	
Renfrew	37	140	470	500	Renfrew Power Co. (capacity being increased).
	20	140	255	100	Woolen mills.
				110	Sawmill and electric plant
				300	Renfrew Milling Co.
				50	Thos. Lowe.
	11	140	140	.....	Unused.
(Smiths Creek Branch)	44	15	60	190	Sash factory.
First chute	32	145	420	.....	
Petewawa River:					
First series rapids below Catfish Lake.	119	120	1,290	.....	
Second series rapids below Catfish Lake.	41	120	445	.....	
Third series rapids below Catfish Lake.	80	120	875	.....	
First series rapids below Cedar Lake.	29	145	380	.....	
Second series rapids below Cedar Lake.	33	145	435	.....	
Third series rapids below Cedar Lake.	36	145	475	.....	
First series rapids below Little Trout Lake.	18	190	310	.....	
Second series rapids below Little Trout Lake.	13	190	225	.....	
On La Vieille Creek	31	60	170	.....	
Second series rapids below La Vieille Creek.	25	250	570	.....	
Third series rapids below La Vieille Creek.	16	255	370	.....	
Fourth series rapids below La Vieille Creek.	27	255	630	.....	
Fifth series rapids below La Vieille Creek.	24	255	560	.....	
Sixth series rapids below La Vieille Creek.	44	255	1,000	.....	
First series rapids below Lake Travers.	16	280	410	.....	
Third series rapids below Lake Travers. (Crooked chute).	41	280	1,050	.....	
First rapid above South Branch.	13	280	330	.....	
First rapid below South Branch.	13	375	445	.....	
Second rapid below South Branch.	18	375	615	.....	
At C. P. R. bridge	21	380	725	.....	
Second above mouth	24	380	830	.....	
First above mouth	21	380	725	.....	

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Waters power in St. Lawrence and Ottawa district—Continued.

Water power.	Lowest head (feet).	Estimated low-water flow (cubic feet-seconds).	Minimum 24-hour power (horsepower).	Present turbine installation (horsepower).	Remarks.
Indian River:					
Pembroke	9	30	25	.....	Foster's mill.
Muskrat River:					
Pembroke	12	60	65	75	Grist mill.
Mattawa River:					
Plein Chant	17	160	250	.....	Electric-light plant.
Paresseux	33	120	360	.....	
Little Paresseux	8	120	95	.....	
Talon	42	60	230	.....	
Montreal River:					
The Notch	100	750	6,500	.....	
Fountain Falls	21	720	1,350	.....	
Ragged chute	36	720	2,360	.....	
Ragged Chute and rapids below and above.	54	720	3,500	.....	
Hound chute	18	720	1,180	.....	
Latchford	8	720	510	.....	
Mattawapika	30	100	270	.....	
Blanche River:					
Lot 12, Con. 3, Evanturel	54	130	640	.....	
Lot 1, Con. 3, Dack	26	130	310	.....	
Lot 2, Con. 4, Dack	34	130	400	.....	
Lot 7, Con. 4, Dack	22	130	260	.....	
Lake Wendigo Branch	36	100	330	.....	
1 mile below Lake Wendigo.	36	100	330	.....	
Wabi River:					
High Falls	81	30	220	.....	
New Liskeard	100	30	270	200	New Liskeard Light and Power Co., under construction.

Water powers in the districts of Algoma and Thunder Bay or rivers tributary to Lake Huron and Lake Superior.

Water power.	Head (feet).	Estimated low-water flow (cubic feet-seconds).	Minimum 24-hour power (horsepower).	Present installation (horsepower).	Remarks.
Spanish River:					
Espanola	62	1,800	10,145	10,000	Spanish River Pulp and Paper Co.
Nairn Falls	28	1,027	2,620	.....	
High Falls	85	1,027	7,936	5,400	Canada Copper Co.
Norway Falls and Rapids	40	935	3,400	.....	Lot 9, Con. 1, Hyman.
Township, No. 108	14	935	1,190	.....	Above Agnes River.
Township, No. 108	32	835	2,429	.....	Below Agnes River.
Metagama (rapids)	27	400	980	.....	
Metagama (rapids)	16	400	580	.....	
Biscotasing (rapids)	26	266	630	.....	
Vermilion River:					
Wabageshik Rapid	15	720	980	.....	
Wabageshik Chute	42	720	2,750	.....	
Soo Line Crossing	.15	700	955	.....	
Island Rapids	11	667	667	.....	
Cascade	19	667	1,150	.....	
Big Stoby Falls	35	640	2,040	1,350	Vermilion River Power Co.
C. P. R. Crossing	11	500	500	.....	
Larchwood	9	500	410	.....	
Onwatin Lake	18	193	313	.....	
Onaping River:					
High Falls	127	300	3,460	.....	
Fall	15	300	410	.....	
Fall and rapids	22	240	480	.....	
Rapids	17	180	278	.....	
Onaping chute (outlet)	11	147	147	.....	
Whitefish River:					
Whitefish Falls	47	117	500	.....	At mouth of river.
Charleton Falls	58	85	450	.....	
Long Lake	16	80	116	.....	Combined with 9-foot fall.

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Water powers in the districts of Algoma and Thunder Bay or rivers tributary to Lake Huron and Lake Superior—Continued.

Water power.	Head (feet).	Estimated low-water flow (cubic feet-seconds).	Minimum 24-hour power (horse-power).	Present installation (horse-power).	Remarks.
Sable River:					
Bridge rapids	8	230	167	.....	
Spanish chute	38.5	230	805	.....	½ mile from Massey.
Graveyard chute	54	230	1,130	.....	
Island rapids	16	230	334	.....	
Crooked rapids	19	230	397	.....	
Meareau rapids	36	230	755	.....	
Cameron Falls	45	230	940	.....	
Long rapids	16	230	334	.....	
Ragged rapids	24	200	435	.....	
McKee Falls	39	160	567	.....	
High Falls	51	130	603	.....	
Serpent River:					
McCarthy's chute	61	154	855	.....	
First log slide	63	140	800	.....	
Second log slide	36	140	460	.....	
Third log slide	26	140	330	.....	
Fourth log slide	19	140	242	.....	
Fall and rapids below Whiskey Lake.	35	40	128	.....	
Rapids at Big Bear Lake	32	40	116	.....	
Blind River:					
Blind River	12	96	105	80	Canada Saw Mill Co.
Cataract Falls	23	87	182	.....	
White Falls	55	87	435	.....	7½ miles from Blind River.
High Falls	31	87	245	.....	
Chiblow Lake (outlet)	45	87	356	.....	
Mississauga River:					
First Fall	20	1,050	1,910	.....	
Second Fall	21	1,050	2,000	.....	
Slate Falls	32	1,050	3,045	.....	Lot No. 12, Con. 6, Gladstone.
Fourth Fall	18	850	1,390	.....	
Fifth Fall	31	850	2,400	.....	
Squaw chute	17.5	850	1,350	.....	
Aubrey Falls and rapids.	117	750	7,980	.....	
Fall	24	420	915	.....	
Head of Lake Minnecsagua	13	360	425	.....	
Fall	21	180	342	.....	
Head of Lake Fall	38	160	555	.....	
White River (eastern branch Mississauga):					
Bells Falls	17	210	327	.....	
White Falls	16	100	145	.....	
St. Mary River:					
Soo rapids	18	60,000	98,200	6,500	Lake Superior Power Company.
Goulais River:					
Lower fall	61	200	1,109	.....	
Upper fall	52	125	591	.....	
Chippewa River:					
Fall at mouth	61	85	470	.....	
Batchewana River:					
Fall at mouth	34	110	340	.....	
Second falls	35	110	350	.....	Artificial head.
Montreal River (Algoma):					
Fall at mouth	165	340	5,100	.....	
Upper fall	170	340	5,250	.....	Algoma Central crossing.
Agawa River:					
Fall at mouth	90	175	1,430	.....	Including backing up on rapids 10 feet.
Michipicoten River:					
Michipicoten Falls	128	650	7,564	2,100	Algoma Power Co.
Cat Portage Falls	33	356	1,068	.....	
Pigeon Falls	18	356	585	.....	
Stony Portage Falls	91	234	1,940	.....	
Shequamka River:					
First fall	27	292	715	.....	First and second fall would be combined by means of a dam at first fall.
Second fall	22	292	585	.....	
Third fall	32	240	697	.....	
Magpie River:					
First, second, and third falls.	113	256	2,630	.....	At mouth of river.
Fourth fall	77	256	1,790	.....	
Fifth fall	63	256	1,470	.....	4 miles from Helen Mine.

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Water powers in the districts of Algoma and Thunder Bay or rivers tributary to Lake Huron and Lake Superior—Continued.

Water power.	Head (feet).	Estimated low-water flow (cubic feet-seconds).	Minimum 24-hour power (horse-power).	Present installation (horse-power).	Remarks.
Dog River:					
Denison Falls	140	125	1,590	.....	
White River:					
First fall	50	500	2,280	.....	6 miles from Lake Superior.
Second fall	40	500	1,820	.....	6½ miles from Lake Superior.
Third fall	20	500	910	.....	6⅝ miles from Lake Superior.
Fourth fall	35	500	1,590	.....	11½ miles from Lake Superior.
Fifth fall	20	450	820	.....	11⅔ miles from Lake Superior.
Sixth fall	145	450	5,950	.....	12½ miles from Lake Superior.
Seventh fall	50	450	2,046	.....	13½ miles from Lake Superior.
Eighth fall	50	300	1,360	.....	32 miles from Lake Superior.
Ninth fall	20	300	545	.....	27 miles below Montizambert.
Tenth fall	33	250	750	.....	25 miles below Montizambert.
Eleventh fall	20	225	410	.....	15 miles below Montizambert.
Pic River:					
Lake Superior portage	51	140	650	.....	60 miles above Lake Superior.
White Otter Falls	42	130	495	.....	
Sand Hill portage	115	130	1,360	.....	
Steel River:					
Simpsons Stretch	71	150	970	.....	7 miles from Jackfish.
Black River:					
Falls at mouth	106	75	725	.....	7 miles east of Schreiber.
Nepigon River:					
Cameron Rapids[a]	39	5,500	19,500	.....	14 miles from Nepigon Station.
Split Rock	15	5,500	7,500	.....	
Island Portage	9.5	5,500	4,750	.....	
Pine Portage Rapids	.....	.....	.....	.....	
White Chute	12	5,500	6,000	.....	
Victoria Rapids	10	5,500	5,000	.....	
Camp Miner Rapids	7	5,500	3,500	.....	
Virgin Falls	25	5,500	12,500	.....	30 miles from Nepigon Station.
Flat Rock	38	5,500	19,000	.....	
Nepigon Tributaries:					
Sturgeon River—					
No-ga-mi-non	42	250	955	.....	Adjacent to iron deposits.
Beaver Falls	28	250	635	.....	
Red Paint River	.....	125	.....	.....	No valuable water power.
Ombabika River	.....	120	.....	.....	Good storage but no valuable power.
Mud River, Wabinosh, Gull River.	.....	.....	.....	.....	Not explored.
Black Sturgeon River	.....	150	.....	.....	No valuable water power.
Wolf River:					
First Fall	30	100	270	.....	
Second Fall	42	100	380	.....	
Current River:					
Falls at mouth	86	[b]130	1,020	1,100	Port Arthur municipal plant.
Cascades	100	[b]100	910	.....	
Kaministiquia River:					
Mount McKay and Kakabeka Falls Ry.[a]	25	830	1,887	.....	Lot 2, Block A, Paipoonge.
Kakabeka Falls and Ecarte Rapids.	180	800	13,100	10,000	Kaministiquia Power Co.
Rapids	10	800	728	.....	
Rapids	33	450	1,350	.....	
Dog Falls[a]	347	450	14,200	.....	25 miles from Port Arthur.
Pigeon River:					
High Falls	110	125	1,250	.....	At mouth of river.
Cascades	100	60	545	.....	
Arrow River:					
High Falls	37	60	202	.....	At mouth of river.
Kawa-Kashkagama River:					
Upper Falls	14	100	127	.....	North of height of land (tributary to Kenogami).
Howard Falls	21	100	190	.....	

[a] Proposed development.
[b] Estimated flow dependent upon adequate storage facilities (Fanning's report).

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Water powers in the extreme western portion of the Province, embracing practically the district of Rainy River, which is the most copiously watered of any in the Province.

Water power.	Head.	Estimated low-water flow (cubic feet-seconds).	Minimum 24-hour power (horse-power).	Present installation.	Remarks.
Seine River:					
Seine Falls	11	800	800	.....	
Island Falls	20	832	1,510	.....	Minto Mine adjacent.
Lynx-head Chute	11	880	880	.....	
Steep-rock Falls	40	960	2,900	.....	
Sturgeon Falls	13	1,120	1,320	.....	
Rainy River:					
Koochiching Falls	23	6,700	14,000	.....	In process of development. One-half of this available to Ontario
Winnipeg River:					
East Branch Kenora	18	2,500	4,100	.....	
West Branch Kenora	18	11,000	18,000	.....	
Island Falls	45	14,500	59,300	.....	Combined artificial head.
Wabigoon River:					
Upper Fall, Dryden	26	240	568	.....	
Lower Rapids, Dryden	22	240	480	.....	
English River:					
Pelican Chute	12	3,200	3,490	.....	
Ear Rapids	29	6,100	16,100	.....	Combined artificial head.
Manitou-Chute	28	7,000	17,800	.....	
Fall	15	7,100	9,670	.....	
Rapids	6	7,300	3,980	.....	
Fall	10	7,500	6,820	.....	
Rapids	6	8,000	4,360	.....	
Rapids	6	9,000	4,910	.....	
Kettle Falls	19	9,000	15,550	.....	
Rapids	15	9,000	12,250	.....	
Caribou Rapids	6	9,250	5,050	.....	

WATER POWERS OF UNGAVA AND THE NORTHWEST

The references given below are taken from Canada's Fertile Northland, a pamphlet containing extracts of evidence heard before a select committee of the senate of Canada, 1907.

[Evidence of A. P. Low, director of geological survey.]

The Territory of Ungava.—There are excellent water powers in the rivers. * * * The waterfall at Grand Falls, on Hamilton Inlet, is a great deal larger than Niagara, having about 9,000,000 horsepower which is not being used at all now, though it might be made use of quite easily at any time if it is wanted. It is 300 miles practically from the sea, and the only purpose for which it might be utilized is in connection with the development of the iron ores, and of course that is a question for the future to decide. There is a great supply of iron in that country, which will probably be valuable in the next twenty-five years.

Senator W. C. Edwards described the Grand Falls at Hamilton Inlet (mentioned in the preceding paragraph) as one of the best water powers in the known world. It has a very large and never-failing water supply, and from the fact that vessels can get right in there and that there is this large area of pulp-wood country in there, there is no district more valuable in the Dominion than that region; but its timber resources are being unfortunately destroyed by the bush fires set by the sparse settlement of fishermen.

Mr. Elihu Stewart, who at one time was superintendent of forests for the Dominion of Canada, tells of the water powers of some of the regions of the Northwest Territories and northern Alberta and Saskatchewan:

Along the Athabaska River there was a very big water power. There are the Grand Rapids and various other points 80 miles north. On the Slave River there are about 16 miles of rapids, which constitute the interruption he had spoken of (to pass out of the Slave Lake) and it would make excellent water power. There is no water

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power on the Mackenzie after you get below Fort Smith on the main stream. It is an immense river 2 or 3 miles wide, and it has been contracted to a mile. (Evidence of Mr. D. B. Dowling, of the geologiacl survey, p. 59.)

Asked by the chairman as to the water power on the Saskatchewan, Mr. Dowling explained that there is a fall of 80-odd feet in 4 miles of a rapids, where the river falls into Lake Winnipeg, and at the mouth of the rapids there is a strip of deep water for a harbor. It is a good harbor. You could probably get a fall of 50 feet in half a mile, and witness thought it could be made available by building a canal on the side. It is a large stream, about the same size as the Ottawa. In the fall it is lower than the early spring, except the fall of 1899, when it rose 25 feet and swept the explorers out of the country. You could not develop as large an amount of power there as you could in Ottawa, because it is not so well situated. At Ottawa there is a group of islands where the water can be divided, but at the Grand Rapids there is a narrow channel running around the horseshoe bend, and the country on both sides is much higher than the river. The river is down in a deep cut. If the channel could be put across the bank, directly across the bend, then there would be an immense water power. By building a very large conduit, and probably a tunnel through there, a large power of water could be obtained.

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big advantage in the cost of coal, in the supply of skilled labor, in lower traffic rates, in cost of machinery and mill supplies, and many other things. Prohibit the exportation of pulp wood from Canada and the American papermakers would be compelled to buy their ground and sulphite pulp from Canada at from $20 to $38. If not, then the American papermakers would have to move their entire plants over here, and would thus build up large, thriving centers of industry around their plants.

"An argument is made by some that the farmer and settler would suffer if the ex-exportation of pulp wood should be prohibited. The Laurentide Paper Company are buying to-day a large portion of their wood from farmers. The policy of well-conducted paper mills, they say, is to buy all of the pulp wood they possibly can from farmers in order to save their own limits from the demands made upon them by increasing productions. The paper mills of Canada to-day could use a very large proportion of the wood now being exported to the United States and with new mills building in Canada the market for the pulp wood and the price would be maintained.

"From the present policy, the company says, Canada is getting practically nothing. The stumps are left as mementoes, a small amount is obtained for transportation, etc. On the other hand, thriving cities are growing up around American mills whose supplies come from Canada. The Americans are quite content to have things remain as they are, for the present arrangements give them the long end of the deal; in fact, the United States Congress dictates to Canada, and not only makes its own laws, but presumes to say what Canada shall or shall not do. Canada gives them all the advantages and gets absolutely nothing in return. Americans own in Quebec Province 12,000 square miles of pulp-wood areas, and this is being rapidly depleted by the hundreds of mills in the United States which are absolutely dependent on Canada for their supplies. It certainly does not seem the part of wisdom for us to continue a policy which has the effect of building up manufacturing centers in the United States when by changing that policy these centers can be developed in Canada. Our present policy of sending our wood to build up a foreign country is just furnishing it with weapons to fight Canada in the commercial world. How well the United States realize the strength of Canada's position on this question was probably never better shown than in the message of President Roosevelt when he practically said, 'It might be well for us to make some concessions to Canada if they will guarantee us free wood.'

"Mr. J. H. Biermans, the managing director, holds strong opinions on the questions connected with the pulp and paper trade that have aroused so much interest in the public mind. On the necessity of this country imposing regulations relative to the cutting of timber he was emphatic. About thirty years ago, he said, the Scandinavians were confronted with the same problem. They, too, had believed that their forests were inexhaustible. It required much persistent and long-continued agitation to awaken them to a realization of the fact that their magnificent forests were being rapidly denuded. To their credit, however, it must be said that when once this fact was borne in upon them they took prompt and effective measures to provide a remedy. Now for every tree they cut down two are planted in its place.

"Mr. Biermans is also a strong believer in the wisdom of keeping our raw material in Canada. He thinks it is foolish and unbusinesslike that we should allow our logs to go free into the United States, especially when the latter country does her best to shut out our pulp and paper by imposing heavy duties. Personally he thinks that prohibition of the export of logs is the best remedy. He considers that the future for the pulp and paper industries in Canada is a dark one unless such action is taken.

"Mr. Riordan is strongly in favor of an unconditional prohibition of the export of pulp wood, whether the United States removes the duty on pulp and paper or not. He believes that our natural resources make it possible for the pulp and paper industry to become Canada's greatest industry, and greater than that of any other country. The cultivation of this industry, he believes, means as much to Canada as the cultivation of the steel and wheat industries that the government have done so much to foster. The remedy might bring about for a time some dislocation of the Canadian pulp-wood business, but he thinks that the end to be gained would justify the government in taking steps to neutralize that dislocation.

"The six daily newspapers of Toronto consumed last year about 9,000 tons of paper, and the consumption has been growing by at least 10 per cent annually. To supply these six newspapers required the product of not less than 3,000 acres of spruce. The Toronto newspapers probably represent one-fourth the home consumption for Canada. This country is even to-day exporting five times as much news paper as is consumed at home, and the industry can scarcely be said to have reached more than the infant stage.

"Thus, for the present home consumption alone about 12,000 acres must surrender their product every year, and for the combined domestic and export business 72,000 acres are devasted annually. These figures will, beyond any doubt, increase enormously during the next four years, for more and more Canada is being looked to for the world's supply of pulp and paper.

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"Two of the Toronto dailies just referred to have only recently raised their price to subscribers outside of Toronto from $1 per year to $1.50 per year. The pinch has been felt more forcibly in the United States, where hundreds of daily papers have raised their prices by from 50 to 100 per cent since the increase in the cost of white paper mentioned above became effective.

"It does not require much argument, therefore, to show that in finding a solution for the pulp-wood problem the newspaper publisher and reader are equally interested. For too long the question has suffered through indifference on the part of the public, who apparently regard it as of interest only to the pulp and paper makers and the paper users of the country.

"The opposition to the imposition of an export duty on the raw material as a means of stopping the denudation of our forest lands is unpatriotic in its fullest sense. It apparently wishes not only the destruction of the beautiful and the useful, but also to balk the immense industries which may develop by keeping the manufacture of pulp in this country. The Sportsman says to the government: 'Stop the export of raw material, force the mill owner to manufacture in Canada, and attend to forest culture as you have to agriculture, and I will be satisfied.' Moreover, an export duty and strict supervision leaves a government in a good defensive position when it is called upon (as it will be) to face an angry electorate and to explain why the country is being robbed of two of its finest assets, which explanation will be demanded in the very near future.

"Let us examine the work of our cousins over the border. Up to a short time ago they suppled the world with lumber and finished paper from pulp wood. This brought them in millions of dollars. To-day both lumber and pulp wood are about exhausted. To-morrow they will have to spend millions annually for both lumber and pulp wood. Until lately sportsmen and tourists came to the United States from all parts of the world to hunt big game, to admire the scenic beauty found in her forest-clothed mountains, East and West, and to angle in her splendid streams and lakes. Those sportsmen brought in millions of dollars—$5,000,000 to one State alone, we are told. That simple tool—the ax—has nearly destroyed these two sources of revenue. In justice to the American people, I must say that this destruction was largely the result of ignorance.

"Recently we discussed this question in all its bearings with prominent American sportsmen at the Sportsmen's show held in New York. All were unanimous in condemning the wasteful methods of the lumbermen and the weakness of the government in permitting it until too late. Let the Canadian people take this lesson to heart in time—this lesson that the American people are finding so bitter to learn and difficult to turn to account. To-day the American lumbermen and pulp-mill owners look to Canada as the dying Moslem looks to Mecca for salvation.

"Ottawa, Oct. 10.—The petition presented to the government yesterday by a delegation of paper and pulp makers, and which the premier has agreed to take under consideration, is as follows:

"'Whereas it has been the policy of the federal government to encourage and promote manufacture within the bounds of the Dominion by duties sufficiently high to protect home manufacture, and by bounties to encourage the use of home raw material; and,

"'Whereas the federal government has expended large amounts to promote agriculture and to encourage immigration from the motherland and foreign countries; and

"'Whereas we have within the bounds of Canada, as a natural product, spruce pulp wood capable of providing employment for a large number of our present people, and for many who may come to find homes here; and

"'Whereas this wood is being raised in Canada and shipped as pulp wood to the United States to keep pulp and paper mills in that country running; and

"'Whereas our present natural advantages should make pulp and paper our greatest industry; and

"'Whereas the exporters are stripping the lands of wood while those with permanent interests in the country are striving to conserve the forests; and

"'Whereas the crop of pulp wood is of very slow growth, and the supply is already becoming inaccessible; and

"'Whereas the free export of pulp wood to the United States, combined with the tariff against our pulp and paper, favors the development of the paper industry in the United States rather than in Canada:

"'Therefore your petitioners humbly pray that the exportation of pulp wood be probihited by the federal government.'

"This is how the probable prohibition of pulp wood by the Canadian government appeals to at least one American Congressman, Charles E. Littlefield:

"'Canada has the largest supply of pulp wood in the world. The country has vast timber resources, and there is already an agitation in the Canadas for an export duty

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on pulp wood. Why are the Canadians asking for this export duty? It is because they want the mills, the millions of capital that would be invested, and the vast sums that would be expended for labor. They want all the returns their forests will give them, and they are right. It is laudable on their part, and it is just as laudable for us. While we stand on the proposition America for the Americans, they shout for Canada for the Canadians. The Canadians have not the same constitutional limitations as embarrass us in this country. Perhaps I should not say embarrass, for I believe that there is not one limitation in the Constitution that is not necessary for our welfare and happiness.

"'But while we are restricted from putting an export duty on any of our products the Canadians are under no such limitations. They already have export duty on some articles. One can see what an export duty on pulp wood would do to the pulp manufacturers of this country in the experience of lumber operators in the Province of Ontario.'"

I shall explain to the house in two words the difference between our constitution and that of the United States. The Federal Government of the United States which has to do with the question of export and import duties has only the powers which are expressly given to it by the Constitution of the United States, whereas the powers exercised by our provincial governments are only those expressedly given to them by the British North America act. The Federal Government of the United States has no power to impose an export duty on any article.

I wish now to read an extract from Pulp and Paper Magazine of February, 1908, which reads:

"Instead of trying to break our business down and force the new mills, which represent an investment of $100,000,000, to move to Canada, why do the newspapers not use their columns to build up the business, advocate preservation of the forests, the building of storage reservoirs, for water-power purposes at the head waters of all streams in the country where practicable, and thus preserve their own existence.

"The 31st annual meeting of the American Paper and Pulp Association took place in New York on the 6th instant, the attendance being larger than ever before."

I have here an article relating to the Watertown Pulp and Wood Supply Company, which reads:

"The above is the name of a company with head offices in Watertown, N. Y., which was incorporated last year under the laws of the State of New York, for the purpose of buying pulp wood in Canada and shipping it to several paper manufacturing companies in the United States. This object is significant, inasmuch as the paper makers in the Republic recognize they can not much longer hunt for individual supplies of raw material either in their own country or in Canada, but find it expedient to join together and draw from one independent source of supply in Canada, over which they themselves will have control. The officers of the company are as follows: J. A. Otterson, president; J. M. Gamble, vice-president; C. H. Remington, treasurer; F. M. Hugo, secretary; W. C. Campbell; E. B. Sterling, general manager. They represent the following companies: The St. Regis Paper Company; The Remington-Martin Paper Company; The Norwood Paper Company; The Raymondville Paper Company; The Carthage Sulphite Company; The West End Paper Company; The Champion Paper Company; The Brownsville Paper Company; The Dexter Sulphite Company; The Carthage Tissue Mills; The Brownsville Board Company.

"The company has an office in Quebec City, managed by E. B. Sterling, who is authorized to buy pulp wood in Canada and ship it to the above companies.

"It was understood that it was the company's intention to build pulp mills in Quebec Province, but J. A. Otterson of Carthage, N. Y., who is one of those largely interested, informs the Pulp and Paper Magazine that this is not the case. Evidently, while the Canadian government delays in bringing forward measures for restricting or prohibiting the export of pulp wood, the Americans think they may as well get all the wood they can in Canada and ship it to the United States for manufacture."

I have here an interesting paragraph entitled "Our Forest Wealth," taken from an American paper, reading:

"Seattle papers predict that the timber resources of the Dominion will soon be severely taxed by increased demands. The rate of consumption shows a constant growth. Concrete, brick, stone, and steel are more largely used in all structural work than ever before. But, notwithstanding the demand for all classes of structural timber, lumber, and wood materials are increasing, too. Other parts of the world have been denuded of trees, and are now restocking their forests. In Canada there is still a large virgin area, an apparently inexhaustible forest supply. But rapid settlement of Canada's prairies, the relatively small pine area left in the United States, and the needs of paper manufacturers are making rapid inroads on Dominion spruce and pine, the country's most valuable timber. Europe is looking to Canada now. The

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United States is buying there, too. The Seattle 'Post-Intelligencer' says that it is the northern wilds that should be Canada's future wood lot. It is there Canada should introduce a practical forestry system that will insure for all time the perpetuation of those forest areas. Growth and reproduction should be continued there indefinitely by scientific forestry methods. If they are, those uninhabited wilds will long be the source of Canada's greatest wealth."

A significant dispatch headed "Big Timber Land Deal" appears in the Globe under date of St. John, N. B., October 5, 1907. It reads:

"For the fifth time during the last two years a lumber deal has been completed on the north shore of New Brunswick whereby American capitalists get possession of property valued at nearly half a million.

"To-day the International Paper Company purchased from Ernest Hutchinson, of Chatham, 45 square miles of granted timber lands and 300 square miles crown lands held under lease from the government, also a large mill. The price is $500,000."

Mr. W. B. Snowball, of the J. B. Snowball Company, has been a consistent advocate of an export duty on pulp wood, and has voiced his opinions and arguments at many of the meetings of the provincial and dominion forestry associations and elsewhere. He said:

"I am opposed to an export duty on pulp wood. My idea is that the exportation of pulp wood from Canada should be absolutely prohibited. If a duty is decided upon it should be high enough to be prohibitive. That is what we should have in this country. I believe that if the governments of the various provinces would follow the example of Ontario and forbid the exportation of pulp wood cut on the crown lands it would go a long way toward inducing the establishment here of the pulp and paper manufacturing establishments from the United States."

I now come to two interesting extracts from the Montreal Herald, the government organ in Montreal. They are as follows:

"The strong movement to which the Herald directed attention some months ago, as growing in force and intensity, in favor of a change in the fiscal conditions that govern the exportation of pulp wood, has found expression in articles that have appeared in other journals as well as in the representations made this week to the prime minister, the minister of finance, and the minister of customs by an influential delegation representing the industry.

"HON. MR. TURGEON FAVORS EXPORT DUTY.

"'It is,' said the minister, 'a hard question to deal with, and there are many grave difficulties in the way of a settlement.' As minister of lands and forests and speaking solely from the point of view of my interest, because of that position, in the forests of the province, I think it would be a great boon for the public domain if the federal government put an export duty on pulp wood. On several occasions people have come to this government and asked why we should not put a big tax on pulp wood cut for export. We have had to point out to them that in the first place we have no power to enact an export duty, and that in the second place, the provincial tax on pulp wood cut for export applies only to crown lands. A careful calculation made by some experts shows that for every cord of wood exported from the province there is left here a sum averaging $6 per cord. That covers everything, labor, price to the seller, transportation charges, and everything else.

"MENACE TO PULP WOOD AREAS.

"It is admitted by everybody who has gone into the question that the pulp wood resources of Canada are vast, but competent authorities declare that it is a mistake to assume that they are inexhaustible. Vast as these areas are in Quebec, Ontario, and some of the other provinces of the Dominion, they are as vulnerable as the herds of buffaloes that once thundered in hundreds of thousands over the prairies, but are to be seen no more. They are as vulnerable as those of the Adirondacks and of northern New York, which gave way before the portable mills of the lumber men until the industry disappeared, and only charred, dry stumps were left to tell the story of vandalism.

"AN EXPORT DUTY ON PULP WOOD.

"The deputation of manufacturers of paper and pulp which yesterday waited on the prime minister, the finance minister, and the minister of customs evidently presented strong evidence in support of their contention that an export duty should be placed on pulp wood by Canada or that the exportation of the wood should be prohibited by federal legislation, as it is now in Ontario by provincial legislation.

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It appears to be clear that the United States paper manufacturers must have our pulp wood, and it is equally clear that they are coming to Canada in large numbers, securing timber limits of great magnitude and stripping them of their pulp wood without doing more for the development of Canada's resources than is implied in the sums they spend for labor and freight. Further, the present condition of affairs encourages jobbers to place 'fake' settlers on crown lands, get the available pulp wood swept clear, and then move the so-called settlers to new fields of labor, leaving behind them lands uncultivated and denuded of timber.

"Were the Canadian paper maker finding a ready market in the States, the situation, from a national standpoint, would not be so absurdly one-sided. As it is, he is debarred by a high tariff from selling his finished product in the country which gives free admission to pulp wood, the raw product of the paper maker. The United States tariff being directly designed to encourage the importation of Canadian raw material and discourage that of Canadian manufactured goods, the question arises: How long are we going to rest content with the situation?

"Ontario has shown by its action in prohibiting the export of saw logs that the process of manufacture of Ontario timber into the finished product could be transferred to that province. Why should similar action by the Dominion not have a similar result? The two difficulties that appear most prominently in the way are the effect upon the bona fide settler, by diminishing his market, and the possibility of serious reprisals by the States. It is probable that the settler would not find much difference in the value of his timber, owing to the great demand for it, and to the fact that, before long, the States will have to get our paper if they do not get our pulp wood. As to the danger of reprisals, a self-respecting people must do what seems best with their own natural products. If they desire to manufacture them into finished articles within their own borders they can not hold their hand for fear of some other people objecting. In fact, it is probable that a firm stand by Canada on this very question would be the most certain means of getting from the United States favorable terms on the importation of pulp and paper. If we could send our paper free into the States, we would not have the same objection to our pulp wood being freely utilized by American paper mills. A fair field is all that Canadians desire. They do not possess it under the existing terms of the United States tariff."

Here is an extract from the Globe of August 31:

"At Sturgeon Falls is one of the great pulp and paper mills of the province, located on the river that carries down to its doors the spruce which feeds its ponderous grinders, and also supplies the power which makes the wheels revolve. The mill—it is probably no secret among financial men of the province—has had difficulties in the past, partly due to the condition of the pulp and paper market, and doubtless to other drawbacks incidental to putting a large industry on its feet. A substantial town with modern buildings and public conveniences has grown up about the mill and within ear shot of the cataract which gave the place its name. The whole aspect of the business has changed with the market conditions of the past fifteen months, and the future of the mills at this point is assured. The output is sold before it is manufactured, and an export business has been worked up."

Here is another article from the World, dealing with Wisconsin's paper industry and its moral:

"WISCONSIN'S PAPER INDUSTRY AND ITS MORAL.

"How necessary it is to encourage the development of the paper-making industry of Canada is brought home to the dominion and provincial governments by a recent article in the Milwaukee Sentinel. Quite naturally the leading Wisconsin newspaper can not restrain its jubilation over the extraordinary progress made by that State in paper production, in which it declares its manufacturers will soon rival the world. Almost all kinds are made. 'Shiploads are sent to Japan and train loads to all parts of the west. Several train loads of paper steam out of the Fox River Valley every evening. It is a small mill which does not make a carload in one day. Some of the machines run a sheet of paper 120 inches wide, 500 feet long, every minute, or a mile of paper every ten minutes, which is rolled into great white rolls and shipped in that manner to the newspapers.'

"Only a few of the paper mills prepare their own pulp. Most of the pulp plants are separate enterprises, dependent for their lumber largely on Canadian forests. 'Thousands of carloads of wood pulp,' says The Sentinel, 'are cut in the northern forests each winter and large rafts brought over the Lakes from Canada each season and loaded on the cars at Green Bay for distribution to the mills.' Paper making in Wisconsin flourishes chiefly in the valleys of the Fox and Wisconsin rivers, but large works have been placed in other water powers. New plants are being constantly erected and all the mills are running night and day. But why should Ontario and the other forest areas of Canada content themselves with supplying wood for United States

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paper mills? Every one of the advantages enjoyed by Wisconsin is possessed by Ontario and bettered—clear water, hydraulic power, proximity to the forests. This Province ought to reverberate day and night with the hum of paper factories, just as Wisconsin does. The provincial government should lose no further time in checking the export of pulp wood and in adopting a policy which will not only encourage, but compel the utilization of the raw wood in Ontario."

Mr. Speaker, in detaining you for so long a time with these cuttings, I feel obliged to say that I have taken every precaution to cut out only those parts that are relevant, and with the object of putting the case in regard to pulp wood as clearly as possible. I wish now to quote from a Report of the Industrial and Labor Statistics of the State of Maine for 1906:

"The immense increase in the volume of this industry during the past two years is a matter of great surprise to us and no doubt will be to a lot who make the mattter a study, but we can not question the correctness of our schedules.

"It is evident to all that this industry is developing the natural resources of Maine as perhaps no other industry has ever done. It is constantly adding wealth to our State, both to the operators and wage-earners, as well as to the merchants and other business men in the communities where the mills are situated. It is adding prosperity to many of our old settled towns and building up new towns in the wilderness. It is giving employment to thousands of our young men who otherwise might be obliged to seek a livelihood in distant parts of the country."

I submit that a great many of these young men mentioned here came from the Province of Quebec.

"It has no doubt been instrumental, to a large degree, in stemming the tide of emigration from Maine, which, in the past has carried such a large percentage of the brain and brawn of our rural communities to other States, much to the detriment of our own.

"The farmer and the gardener, as well as the business man and the workman, feel the influence of the industry in the new demand for produce, which adds much to their income, where formerly the most remunerative products of the soil, without a local market, were rendered almost valueless on account of their perishable nature.

"The most serious problem in this industry is the question of a wood supply for the pulp mills."

From the closest estimate the writer can make from a compilation of their returns, it appears that after deducting Canadian spruce and the edgings and other mill waste from the total amount used, the Maine forests will soon be depleted. Now, sir, here is a statement taken from a book prepared by the Toronto Globe:

"I do not think there is any doubt but that Canadian mills could and would buy all the wood that the Quebec farmers have for sale at as good a price as they are now getting if the Canadian mills had the protection that the prohibition of export would give them, and the new construction that this protection would bring about would soon make the market larger than ever. Our company are at the present time using from 90,000 to 100,000 cords per year, and we buy a considerable portion of it from farmers."

That is from an interview with the general manager of the Riordan Paper Mills Company. I will now quote from a Globe editorial of September 20, 1907:

"In a number of cases the 1-cent dailies have been put up to 2 cents, and many country weeklies have advanced their subscription prices. Some publishers are cutting down the size of their publications, others are reducing their headline and still others are using smaller type. All these remedies go but a little way to relieve the present distress, to say nothing of averting the impending danger. It is too late to do much in the way of conserving the supply of pulp wood in the United States, but there is still opportunity to do a great deal in the way of preventing a like situation from arising in Canada."

Now, sir, here is the opinion of Mr. Barber, president of the Wm. Barber & Brothers' paper mill at Georgetown:

"I believe in putting an export duty on pulp wood, but it should not be larger than the duty now charged by the United States on our wood pulp. The export duty should be retained until the United States removes the duty on Canadian pulp, and then it should be taken off."

In regard to the retaliation cry, Mr. Barber says:

"The retaliatory duty which will go into effect in the United States as soon as action is taken by Canada by the putting on of a duty need not alarm either the pulpwood or wood-pulp exporters. I venture to predict that if the Canadian Parliament puts on an export duty immediately after the opening of the coming session, the United States Congress would within two months thereafter repeal the retaliatory duty and put Canadian pulp on the free list. A sign of the feeling in the United

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States was given at the meeting of the publishers of newspapers held last month for the purpose of formulating a demand for the free admission of Canadian paper and pulp. They will be supported in part by quite a large number of American paper makers, who want Canadian pulp free of duty, but do not want the paper admitted on the same terms. My opinion is that there will be a compromise of the conflicting interests by admitting pulp wood free without any change in the present duty on paper. If the United States does not want our new spaper other nations do, and with our ample supplies of wood and splendid water powers we can manufacture so as to undersell them in any foreign market."

I freely believe, Mr. Speaker, that if the whole matter is properly explained the farmers of Canada who have pulp wood to sell (not the manufacturers of the States) will join in the movement to keep Canadian crude products to be manufactured in Canada. At present they hold the dollar so close to their eye they can't see the many dollars beyond. I am reminded of the time the mechanics broke new inventions because they thought they would stop labor; now they realize better pay and shorter hours through same machines. Now, sir, in concluding the compilation of facts considering this great question, facts which have been added to and are being added to every day, I wish to say that my attention was first directed to it specifically by a conversation last fall with a gentleman who had been in the United States, who was fully conversant with the ins and outs of the whole business and who said if the United States were in our position they would not wait a day before putting on an export duty. Politics steps to one side over there when the mighty dollar is in danger. I also want to say that I presented this resolution entirely of my own motion, that I consulted no one, advised with no one, and am fully prepared to plow my lonely furrow if facts, reason, or other considerations prevent anyone from seeing the case is I see it. I also wish to say I consider it a question so great, so vital to the national and private weal, that it should be absolutely kept out of politics. I therefore ask the government to appoint a committee of the House, three or five, to take evidence in and out of session and investigate the whole matter and report at another session. In the light of the facts to be found by this committee I trust the government will take some action which will bring into force an export duty, not immediately, but within a reasonable time, giving everybody due notice, which will have the effect of bringing the mills to Canada, and thus having the product of our own country manufactured in our own country.

RESTRICTIONS UPON EXPORTS.

From a paper entitled "The Lovers of Out-of-Door Life and the Forest," given by L. O. Armstrong, colonization agent of the Canadian Pacific Railway, before the association in Montreal March 13, 1908:

The opposition to the imposition of export duty on the raw material as a means of stopping the denudation of our forest lands is unpatriotic in its fullest sense. Such people apparently wish not only to destroy the beautiful and the useful, but also to balk the immense industries which may develop by keeping the manufacture of lumber and pulp and paper in this country. The sportsman says to the government, "Stop the export of raw material, force the mill owner to manufacture in Canada, attend to forest culture as you have to agriculture, and I will be satisfied." Moreover, an export duty and a strict supervision leaves the government in a good defensive position when it is called upon, as it will be, to face an angry electorate and to explain why the country is being robbed of two of its finest assets, which explanation will be demanded in the very near future.

Let us examine the work of our cousins over the border. Until quite recently they supplied the world with lumber and finished paper from pulp wood. This brought them in millions of dollars. To-day both lumber and pulp wood are nearly exhausted, in certain parts quite exhausted. To-morrow they will have to spend millions annually for both lumber and pulp wood. (Page 112, Canadian Forestry Association, Ninth Annual Report.

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INSTANCES OF NEWS ITEMS RELATING TO TARIFF AND RECIPROCITY APPEARING IN LEADING CANADIAN NEWSPAPERS DURING TRIP OF COMMITTEE ON PULP AND PAPER INVESTIGATION IN THAT COUNTRY

Toronto Daily Star, November 23, 1908:

FISCAL REFORM TO HEAD OFF RECIPROCITY—HAMAR GREENWOOD SAYS THAT WITHOUT SOME ACTION ON BRITAIN'S PART CANADA WILL TURN TO UNITED STATES.

LONDON, *November 23.*

Though the speech of J. J. Hill at the Chamber of Commerce banquet in New York was lengthily reported here, it has attracted little attention.

The Observer, however, has interviewed Lord Strathcona and Hamar Greenwood, M. P., respecting it. The former disagreed with Mr. Hill's views, and stated it was unquestionably true that Canadians were strongly in favor of the preference to the mother country, and any proposals to further this policy coming from England would be most favorably entertained in Canada, whichever party happened to be in power.

Mr. Greenwood said free trade between the United States and Canada was not within the realm of practical politics. From his recent journey through the United States he knew it to be the policy of President Roosevelt and other leaders to curry favor with Canada, in the hope of breaking down the tariff walls with the object of benefiting the United States traders, but the persistent irritation of the policy of successive United States governments had hardened Canadian hearts. Canada now asked no favors from Uncle Sam, and would certainly grant none to conflict with the interests of the mother country.

Mr. Greenwood opined that if the interests of Canadian consumers demanded it the preference would be withdrawn, but Canada had now reached that stage of national development which would make a mighty race, ever attached, he hoped, to the home country, but ever as hard as flint against American absorption or other foreign influence.

FEDERATION WITH UNITED STATES.

The Observer, which is a militant tariff reform journal, editorially remarks that the Canadian question was uppermost in Mr. Chamberlain's mind when he entered on what seemed to be his incredible campaign, for it was as clear to him as it is now plain to others that the alternative to an imperial preference was the fiscal federation of Canada and the United States. Without some action on this side it was quite certain that within the next few years some process of trade reciprocity would be initiated.

"When we speak now of inevitable victory for the preference let us hope it will not come too late to serve its main original end," says the Observer.

COMMITTEE TRIP TO CANADA

[Toronto, (Canada) Globe, November 24, 1908.]

STUDYING OUR PULP WOOD—SPECIAL COMMITTEE FROM CONGRESS IN ONTARIO—PREPARING A REPORT ON PULP-WOOD SUPPLY OF CONTINENT—MAKING PERSONAL INVESTIGATIONS—PARTICULAR NEED OF POLICY OF FORESTATION.

Three members of the special committee appointed by the United States Congress in April last to inquire into the pulpwood and paper question spent yesterday in Toronto and interviewed a number of authorities on Canadian forests. The members were Congressmen James R. Mann, of Chicago; W. H. Stafford, of Milwaukee; and W. H. Ryan, of Buffalo. They were accompanied by Mr. C. C. Steinbeck, of Chicago, the secretary of the committee. During the forenoon they had a talk with Sir James Whitney and Hon. Frank Cochrane, and much of the department's information regarding Ontario forests was placed at their disposal. In the afternoon Professor Fernow, dean of the faculty of forestry at the university, was seen, as well as a number of others.

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Speaking to a Globe representative, the committee stated that they were primarily attempting to find out whether there was a sufficiency of raw material in the United States or on the continent to insure the supply of paper for all time to come—that is, provided proper forestation measures were adopted. They desired to gain first-hand knowledge of Canada's wealth in this regard. With this object in view they left last night for a trip to New Ontario, where personal inquiries will be conducted. It is their intention to go as far north as Matheson, on the T. & N. O., and from there go directly into the woods. They will thus be able to report as to what they have seen instead of merely what they have heard. Information is particularly desired regarding the resources of north and northwestern Ontario.

The committeemen have already made personal investigations in many States of the Union, spending many days in the woods, as well as taking a lot of evidence. It is expected that their report will be presented to Congress when it assembles in March. While the members were not in a position to forecast the report, it was gathered from their conversation that they think the United States, with a proper forestation policy, will be able to look after its own interests with regard to paper for many years to come.

Editorial Ottawa (Canada) Citizen, November 27. 1908:

COMMENT.

"A United States congressional committee was in town yesterday investigating our pulp-wood resources. It is not related anywhere that they examined the heads of those who do not recognize the importance of forestry."—Toronto Star.

They might also pay some attention to the occiputs of the government that neglects to put an export duty on pulp wood, and so allows a foreign country to profit to the extent of many millions of dollars annually by the exploitation of our raw material.

CANADIAN PROHIBITION OF PULP-WOOD EXPORTATION

Extract from address of Mr. Rolland, president of Canadian Manufacturers' Association, at annual meeting in October, 1908:

THE PULP-WOOD SITUATION.

In this connection I desire to place myself most emphatically on record as an advocate of prohibiting, absolutely and totally, the export of pulp wood. Nothing can ever compensate us for the loss we are sustaining from year to year by allowing this material to leave the country in its unmanufactured state. By careful calculations it has been shown that all Canada gets on the average for a cord of pulp wood shipped to the United States, including freight charges to the boundary, is from $6.70 to $8.50, according as it is cut from private lands or from limits leased from the Crown. If manufactured into newspaper in Canada the same cord would net the country $37.40. At the least calculation, therefore, we are losing $28.90 of possible profits on every cord exported. In the fiscal year ending March 31, 1908, we sold to the United States 902,311 cords, so that our loss in that year alone reached the enormous total of $26,076,787. When it is remembered that a very large percentage of the added value is made up in wages that would have been paid to Canadian workingmen, the figures take on a significance that may well give us cause for sober reflection.

Looked at from another point of view, the capital invested in pulp and paper making in the United States in 1905 was $277,500,000; its annual output was worth $188,715,000, and the amount it spent in wages was $38,000,000. Canada last year sold the mills representing this gigantic industry one-fifth of the pulp wood consumed in their operations. It is only reasonable to assume, therefore, that had the manufacture of the finished product been transferred to this country it would have meant an investment of $55,500,000 in Canadian pulp and paper mills, an increase in our output of $37,743,000, with an extra $7,600,000 in the pockets of our working classes.

Every stick of pulp wood we allow to leave the country becomes a weapon in the hands of our keenest commercial rival to club us into a state of servile submission. American concerns already control 25,000 square miles of timber limits in Quebec and the maritime provinces. According to the Wall Street Journal, the International Paper Company in one year acquired 1,225,000 acres of new limits, mostly in Canada. To persist in our present policy is to sell our birthright for a mess of pottage, and in the name of our common country I believe it is time we called a halt.

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DROUGHT AND SHORTAGE OF WATER POWER AT OTTAWA, CANADA.

Editorial Ottawa (Canada) Citizen, November 26, 1908:

A MOST SERIOUS CONDITION.

It is doubtful if the seriousness of the condition of Ottawa's water supply at the present time is quite realized by the public, or even by the city council. Never before since the large water powers at the Chaudiere have been fully utilized has the water supply been so low as at the present time. Neither is it a stringency which may be relieved in a few days, or even several months, should the winter set in early in December as usual. The experience of those intimate with the conditions at the Chaudiere leads to the conclusion that no permanent relief may be expected before next March. The water is very low at present, but unless the winter is particularly open and a great deal of rain falls without the river freezing up, under natural conditions the level of the river will be much lower in February than it is now. It may not be generally known that the great lakes and rivers of Canada are usually at their lowest point in the middle of winter, after the fall rains have drained to the ocean and the spring floods have not arrived. This season there have practically been no fall rains, consequently unless the winter is exceptionally open, so much so that no ice forms on the streams, there seems no doubt that the conditions at the Chaudiere will be much worse before it is better.

In addition to this, the lowness of the water exposing a greater extent of rapid, will particularly facilitate the formation of anchor ice in event of the usual cold weather, and might, under existing conditions, hopelessly cut off what power then exists.

It has been suggested that the city request the industries at the Chaudiere to shut down, so as to increase the hydraulic power for operating the city waterworks. Judging from the discussion by the board of control, the idea seemed to be that it was only a question of having the water-power owners oblige the city in this way for a few hours or days, as the case might be. Our contemporary, the Journal, apparently has the same idea when it says:

"The city is in a position of danger.

"The Journal is under the impression that the question of giving Ottawa (and Hull) an adequate supply of water for fire and domestic purposes could be solved to-morrow—in a few hours—by the simple expedient of temporarily stopping all water wheels until the river rises a few feet behind the existing dam above the Chaudiere."

But this is taking an entirely inadequate view of the situation. Between the Little Chaudiere and the Big Chaudiere there is a large bay, or basin, which is practically a reservoir for the supply of the water used by the hydraulic plants between Ottawa and Hull. The reason that this reservoir is so low at the present time is because there is not enough water running into it to maintain its ordinary level and also supply the hydraulic plants lower down. If all the plants shut down, the water in the basin above the Chaudiere would rise in proportion to the saving thus affected. But from the moment the hydraulic plants resumed operation the water in the basin would be lowered with equal rapidity. This would naturally be a matter of hours either way. Consequently in order that the city should have the water in the basin permanently raised to a higher level, it would have to secure the consent of the water users at the Chaudiere to permanently shut down, or at least until such time as the volume of water coming down the river once more proves sufficient to operate all the plants. This is practically what the city is up against. Whether the period during which it would be necessary for the industries at the Chaudiere to shut down, in order to provide the Ottawa water powers with adequate hydraulic power, be weeks or months remains to be seen.

Only, if the city of Ottawa is to request private industries to suspend opreations, the question of compensation will inevitably crop up. The water powers at the Chaudière are owned by J. R. Booth, the Ottawa Electric, and the Bronson company on the Ontario side; and the E. B. Eddy Company, and the Hull Electric Company on the Quebec side. If it were only a matter of closing down for a few hours, as is intimated by our contemporary, there would probably be no difficulty, but the close down for a few hours will only increase the hydro-electric power of the Ottawa waterworks for a few hours. Even supposing that all thejprivate industries shutting down would more than fill the reservoir and keep it full, the question will inevitably arise as to which industry shall utilize the surplus, which presents another difficulty. Again, the Ottawa Street Railway and the Electric Light Company have auxiliary steam plants, which, however, are not sufficient to enable them to run without the assistance

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of their turbines. And if they are requested to curtail their electric-light service in order to help the city of Ottawa, it is not unreasonable to anticipate that those interests may insist upon the city curtailing its lighting service, which is operated by power furnished by the Hull Company on the Quebec side of the channel.

[Editorial, Ottawa (Canada) Citizen November 27, 1908.]

THE OTTAWA RIVER PROBLEM.

The anxiety and loss which are being caused this fall by the lowness of the water in the Ottawa River, as well as the almost equal anxiety and damage sustained from the abnormally high water last spring, will direct public attention to the importance of controlling the flow of this great stream. It will be recalled that in May last the flood of water in the Ottawa Valley was so great that considerable damage was done the property along the banks, and navigation was seriously interfered with by reason of most of the wharves being submerged; in addition to this there was grave reason for apprehending that the great log booms on the river and its tributaries would be swept away and millions of dollars of loss sustained. In addition to this many of the water powers in the Ottawa Valley were drowned out and industries had to suspend operations. It was the most severe experience of the sort that had occurred in a quarter of a century.

This fall conditions have gone to the other extreme. The water in the river is lower than it has been for a quarter of a century, with the result that industries throughout the Ottawa Valley have had to shut down, or greatly curtail their operation, owing to the lack of hydraulic power; and the water supply of the capital is seriously threatened because there is not sufficient pressure to operate the pumps. Not the least misfortune resulting from these extremes of high and low water has been the exposure of large microbe-breeding areas of river bottom, which when they were exposed to the action of the sun and atmosphere as the stream contracted could not but have had a deleterious effect upon the water supply of the municipalities along the river. This is shown by the unusual prevalence of typhoid fever in Pembroke, Aylmer, and other places.

While the conditions during the past season have been abnormal, the experience may have a good effect in drawing public attention to the necessity of controlling the flow of the great stream so as to avoid to a large extent these extremes, which to a lesser degree are experienced each year, and are becoming more pronounced owing to the destruction of our forests. This could be done at an expense relatively small in comparison with the advantages which would result. The many tributaries of the Ottawa River above this city, varying from good-sized rivers to small streams, were, until recent years, extensively used in lumbering operations, and were provided with a system of dams which held the water back during the high-water period, and this surplus water was available for navigation and power purposes later in the year during the low-water period. Since lumbering operations have stopped in this lumber region these dams have been unused, and are now old and comparatively useless. This has added considerably to the great fluctuations in the volume of water in the main stream, but at the same time their existence suggested a remedy for the trouble. The Dominion government has already commenced work on a dam at the foot of Lake Temiskaming, one of the sources of the Ottawa, with a view to impounding its waters so as to regulate the flow of the stream. The configuration of the shores of this large lake is such as lends to it the character of a great mill pond. At the northern end its shores are comparatively flat, while toward the south they gradually become steeper until it reaches a huge narrow gorge at the Narrows. When this government work is completed, Lake Temiskaming will form a huge reservoir hundreds of square miles in extent, from which the flow of the Ottawa, both at high and low water, can be to some extent regulated.

Following the same plan dams could be constructed at the foot of the long reaches on the lower Ottawa, which would still further assist in controlling the flow, and would be available in insuring freedom of navigation and an all-year-round supply of power for the industries in the Ottawa Valley. For instance, a dam across the Ottawa at Deschenes Rapids, 3 or 4 feet higher than summer low-water level, would conserve that additional depth of water as far up the river as the Chats Rapids, a distance of 35 miles, which immense reservoir could be drawn upon for power purposes, and would also insure a sufficient depth during the period of navigation. Last summer hundreds of small craft at Queens Park, Aylmer, and Britannia were compelled to seek the deepest water channels to avoid grounding, although most of them did not draw more than 2 feet of water. It is also an actual fact that, with the exception of one channel along the Hull shore, the Ottawa River where it flows under the Canadian Pacific Railway bridge does not average 2 feet in depth. Under the pres-

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ent extreme conditions, should winter set in as severe and as early as it did last year, the whole river at that point, with the exception of the channel mentioned, would probably be frozen to the bottom, and what the consequence would be so far as Ottawa's water supply is concerned can not be contemplated without serious alarm. Of course there is every hope that this will not be the case, but we are brought to the point of having to consider it as a by no means unlikely possibility.

The same principle of constructing low dams might be applied to the other long reaches of the Ottawa above the Chats rapids and at Hawkesbury, and the tributaries could be treated in the same manner by the restoration of the lumber dams already referred to. It needs no particular knowledge of hydraulics to appreciate the effect that these improvements would have. The extreme low-water period is usually in February. Under present conditions when the spring opens a huge volume of water pours untrammeled down the Ottawa valley to the St. Lawrence and the sea, and makes itself felt throughout the whole length. If this system of dams were in existence each successive reach of the river would fill up before overflowing the next, and the rising of the water would not only be more gradual than at present, but would not be as high on account of the enormous quantity impounded in Lake Temiskaming and each successive reach until it emptied into the St. Lawrence. In the same way when the low-water period approached the impounded water would be gradually released so as to preserve an even flow during the low-water period.

This project could be carried out now at much less expense than later on, and would not involve any injury to riparian rights, because the dams would be so low as not to back up the water beyond the ordinary shore line at medium water mark. The project would also save a great deal of money during the ultimate construction of the Georgian Bay canal, because the channels through river reaches would not have to be dredged to the depth which would otherwise be necessary if the present minimum depth of water prevailed. It would also have its effect in regulating, to some extent, the depth of water in the St. Lawrence ship channel, the Ottawa being the largest tributary of that river. The government is to be commended for making a start in this most desirable system of improvements, and further representation should be made by representatives of the whole Ottawa valley to urge upon the government the prosecution of the work on a larger scale, the advantages of which have been outlined above.

Ottawa (Canada), Citizen November 27, 1908:

NEW LANDS FIT FOR AGRICULTURE—ACCIDENTALLY DISCOVERED ON HIS TRIP—BY MR. H. A. CONROY, INDIAN INSPECTOR—REVELATIONS NORTH OF LESSER SLAVE LAKE.

In the ten years that he has been Indian inspector for the vast territory lying between Edmonton and Great Slave Lake, in the north, and between the Athabasca River and the Rocky Mountains on the west, Mr. H. A. Conroy has acquired a knowledge of the country probably unexcelled by that possessed by any other man. The district is known as "Treaty No. 8." There are some 4,000 treaty and probably 2,000 non-treaty Indians within its limits, divided into 18 bands, and including several tribes, such as the Crees, Beavers, Dog Ribs, Yellow Knives, and Chipewayaus. In making the round of the various treaty points, starting from Edmonton, traveling west to Fort St. John, British Columbia, on the Peace River, north to Great Great Slave Lake, Lake Athabasca, and down the Athabasca River, back to Edmonton, Mr. Conroy accomplishes every year a journey of fully 4,000 miles. The trip is covered by every sort of conveyance known in the far Northwest, from river steamers and York boats to cayuses and canoes.

In his evidence before the Senate committee last year Mr. Conroy gave valuable information as to the agricultural capabilities of this immense area, its soil, climate, and timber resources. Much of it was a revelation of the fertility of the Peace River and Hay River districts, as well as the forest wealth of the country generally. This year, however, owing to unforeseen conditions, he has added considerably to his stock of information about this northern territory. Having visited Fond du Lac, at the eastern extremity of Lake Athabaska, and Fort Resolution, on Great Slave Lake, he returned up the Athabasca River to what is known as Pelican Portage, intending to continue the trip westward by canoe on the Wabiskow, which is well north of Lesser Slave Lake. The water proved to be too low for navigation, and so the party was forced to make the trip, some 200 miles, overland by pack train. The estimate previously formed of this stretch of country, based upon such observation as has been afforded by the regular canoe and portage route, was that it abounded in muskegs and was a sort of "bad lands" in general. The overland journey disclosed far different conditions. "Instead of the long stretches of muskegs we expected to meet," said Mr. Conroy, "we

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found the country to be of the very best, four-fifths of it, I should say, fit for agriculture, and with many patches of good timber, chiefly along the river bluffs. It is certainly the greatest hay country I ever saw. We went through miles of it where the hay, a fine 'bluejoint,' grew 5 and 6 feet high, with a dense accumulation of cured grass at the bottom. I dug about 6 feet into the soil to test its quality. There is no sod, just successive layers of decomposed vegetation running down into loose, rich mold. The whole country is park-like in appearance—numerous lakes 5 and 6 miles long, with high, sloping banks, and miles on miles of poplar groves growing in fine soil. The lakes, I may mention, are full of excellent fish. On the Wabiskow 'Mountains,' as the Indians call them, although they are really but a watershed, there is quite a heavy growth of very good spruce. There is no better country for mixed farming in all the Northwest. It is 200 miles north of Edmonton, but still very far south of Vermilion, where the Hudson Bay Company's mill grinds some 25,000 bushels of locally raised wheat every year. At Lake Wabiskow this summer I saw fine tomatoes red ripe on the stalks."

During the trip from which he has just returned, Mr. Conroy also passed through a farther stretch of the country lying north of the Peace River, between Peace River crossing and Fort St. John, British Columbia. He found a beautiful region and one evidently as good for agriculture as any on the Saskatchewan. "In fact," said Mr. Conroy, "the people of British Columbia don't realize what they have there."

Of the work performed by the government fire guardians in preserving the forest in the north, Mr. Conroy spoke in terms of praise. The Indians he found to be complying willingly with the law which prohibits the killing of buffalo. At Hay Lake the chief told him of an immense male buffalo, an outcast from the herd, that had been seen in that district, and urged that the Indians be given permission to shoot it, as the animal was of great age and was doomed to fall a prey to the wolves sooner or later. Mr. Conroy intends to ask permission to have the big buffalo shot and placed among the specimens in the national museum at Ottawa.

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PULP AND PAPER INVESTIGATION HEARINGS

PULP-WOOD PROBLEMS OF CANADA

SELECT COMMITTEE OF HOUSE OF REPRESENTATIVES

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JAMES M. MILLER, Kansas
HENRY T. BANNON, Ohio
WILLIAM H. STAFFORD, Wisconsin
THETUS W. SIMS, Tennessee
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NO. 38

WASHINGTON
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WOOD PULP, PRINT PAPER, ETC.

CANADIAN PUBLICATIONS—Continued.

PULP WOOD AND ITS PROBLEMS.

During the summer of 1907 the Toronto (Ontario) Globe carried on an investigation in regard to pulp wood and its problems in Canada. The result was a series of articles, from which extracts have been taken. The following, printed as an introduction to the articles in pamphlet form, shows the purpose of the inquiry:

During recent years, and particularly within the last two, the newspapers of this country have frequently recorded the purchase or lease by Americans of pulp-wood areas in different parts of the Dominion for the purpose of exporting the wood to pulp and paper making establishments on the southern side of the border. They have also recorded the growing purchases, for export purposes, of pulp wood cut on the lands of settlers and farmers, principally in the Province of Quebec. In addition, many items have lately appeared in the press tending to show that Americans are now turning their attention to the immense pulp-wood areas of Ontario as a present and future source of supply for their pulp and paper mills. These conditions led the management of The Globe early this summer to decide upon an inquiry, with a view to giving the readers of the paper some idea of the manner in which one of the greatest natural resources of this country is being largely exploited for the benefit of foreign competitors in trade and commerce, and to start, if possible, a discussion that might result in concrete action, should such be shown to be necessary. Mr. J. S. Crate, then a member of The Globe staff, and myself were intrusted with the inquiry. He dealt with the situation and conditions as they apply to the region usually referred to as New Ontario. I visited points in the provinces of Quebec and New Brunswick, and finished my part of the investigation at Ottawa. The result of our respective tours was the letters and interviews herein contained, and which appeared in The Globe on the dates attached to them. These, because of the importance of the subject dealt with, have attracted considerable attention in Canada and the United States, and have been widely commented upon by the press of both countries. Many private letters have also been received by The Globe, commending the management for undertaking the investigation.

The inquiry was in no sense of the word political, nor was it narrowed to any one specified course. The articles, written in the hope that they might interest the average reader, as well as those who have a deeper concern in the question because of business reasons, were published as penned by the investigators, and in so far as the latter may seem to favor certain lines of action their views are their own, absolutely untrammelled by any suggestions from The Globe management. It is not claimed, of course, that these articles constitute the last word on the question; that would be a manifest absurdity. Nor was everyone directly interested interviewed at the places visited. Some of those whose opinions The Globe was anxious to obtain were in Britain or elsewhere on holiday or business trips while the inquiry was progressing; others declined to discuss the question. But it is contended by Mr. Crate and myself that as neither of us has any monetary interest in a pulp wood, pulp, or paper business, we carried out the duty intrusted to us without any other consideration than a desire to be fair.

WILLIAM BANKS, Jr., *City Editor.*

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CORNERING QUEBEC'S PULP WOOD.

Extract from the Toronto Globe, July 12, 1907; article written from Quebec:

The American pulp and paper makers at any rate have no delusion. They are bestirring themselves to make sure of supplies for their mills, and for the moment, although there have been some inquiries in Ontario from Wisconsin and the purchase by Wisconsin people of one Ontario mill and the accompanying concession, they are reaping their harvest in the Province of Quebec. In some instances they have leased lands from the Crown, in others they have bought land in fee simple from private parties, and almost invariably they are buying pulp wood from the settler and the farmer as well as from anyone else who has it to sell. A number of the Americans who have leased limits in the province cut off the wood as rapidly as possible and reserve that on the lands they buy from private parties. They seem to feel that at the expiry of the present regulations governing the cut on crown lands the provincial government may deem it advisable to impose more onerous terms on wood cut for export. At the present time the stumpage on pulp wood cut on crown lands is 65 cents per cord, with a reduction of 25 cents per cord if it is manufactured into pulp or paper in Canada.

There are under timber license in the Province of Quebec about 70,000 square miles of crown lands, and of this it is known that about 12,000 square miles are held by Americans. But the American practice during recent years has been to acquire lands through companies organized in Canada as well as obtaining private lands in the same way, and at the same time buying pulp wood in the manner previously stated, so that it is practically impossible to say just how much of Quebec's forest areas are held by Americans.

The objections raised in Quebec by those who opposed the imposition of an export duty on pulp wood going to the United States or its total prohibition are varied. Briefly, they may be summarized as follows:

1. The fear of retaliatory action on the part of the United States.
2. The contention that many restrictions of the nature outlined would simply result in curtailing the cut and the price and market for the wood because the Canadian pulp and paper mills would be able to control this phase of the industry.
3. That the settlers and farmers would suffer, because in many sections of the country both are able to make a fair revenue from the sale of pulp wood on their land; with a restricted market they would have little chance of selling at a fair price. For the settler there is expressed a particular solicitude by those opposed to any restrictions on pulp-wood operations.

PULP WOOD IN NEW BRUNSWICK.

Extract from the Toronto Globe, July 16, 1907:

Fredericton.—Conditions in New Brunswick are somewhat different from those prevailing in Quebec. In the former Province the pulp wood export industry, so far, is an offshoot of the lumbering industry, though, as in Quebec, a considerable amount of pulp is made for export. Roughly speaking, the forest area of New Brunswick still under control of the Crown is in the center of the Province and comprises about 10,000 square miles of land. Of this the greater part or, at any rate, all the best portion is under license. Black spruce is the predominating timber, and in most sections its reproduction, where ordinary precautions are taken, is fairly rapid. Except in a few instances where the spruce from various causes is of stunted growth and there are no other trees in quantity and quality enough to be of commercial value, pulp wood as distinct from any other kind of wood is not allowed to be cut on crown lands. The regulations provide that nothing can be cut on crown lands that will not make a log at least 18 feet in length and 10 inches at the small end. The effect of these regulations is that the total of the pulp wood proper and cord wood—no distinction being made between the two—cut on crown lands for the year ending October last was 10,806 cords. The spruce logs cut for the use of the pulp mills are measured by the foot, and not by the cord.

PULP WOOD AND THE PAPER INDUSTRY.

In the Toronto Globe of July 19, 1907, are presented the views of Sir William C. Van Horne, president of the Laurentide Paper Company, Grand Mere, Quebec:

First, let us consider the value of Canada's spruce forests; there are other kinds of timber, poplar, for instance, from which wood pulp suitable for paper may be

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made, but the supply of these is so limited and the sources so scattered that they need not be taken into account.

The great bulk of the paper consumed in the world is made from spruce wood. In the United States the States of Minnesota, Wisconsin, Michigan, northern New York, Vermont, New Hampshire, and Maine at one time had what was regarded as an inexhaustible supply of this timber, but in Minnesota, Wisconsin, and Michigan it has been almost entirely exhausted, and the Wisconsin paper mills are now compelled to draw even upon the Province of Quebec for their supply, which they have to carry more than 1,200 miles by rail, and which costs them at their mills about $15 a cord. In the Adirondack region of New York considerable spruce timber remains, although the available supply for the pulp and paper mills has become exceedingly small because of the large amount of timber lands held by wealthy individuals as shooting preserves, the large park reservations which have been made by the State, and because of the extensive areas which have been destroyed by fires. The situation in Vermont is much the same, but that State has even less available spruce, and New Hampshire has no more than is necessary to meet the requirements of its own mills. The statistics of available spruce in the United States show a large amount remaining in the State of Maine, but south of a line drawn east and west across that State from the north end of Moosehead Lake extensive timber operations have been carried on for many years, and there is comparatively little spruce remaining. North of that line, in the area containing the greater part of the standing spruce in the State of Maine, the streams all flow into the St. John River, and the timber must either go out through Canada or railways must be built to it; and to reach all of the timber an impossible railway mileage would be required. Therefore, the available spruce supply of the United States is practically limited to southern Maine, to New Hampshire, Vermont, and the Adirondack region of New York, and, failing supply of pulp wood from Canada, these districts would not afford sufficient spruce wood to keep the American mills going more than a few years—four or five years at the outside, and probably not more than three.

CANADA'S COMPETITORS.

The world has only two other sources of supply, the Scandinavian and the Canadian. There is some spruce in Finland, and farther east in Russia, including Siberia, but very little of this can be counted as available. Norway and Sweden have no "floatable" rivers, and the wood has to be brought down by railway. All Europe has been supplied from these sources for a long time back, and great inroads have been made upon the forests—so great that the stunted timber of the Lapland slope has now to be drawn upon. It is hardly necessary to point out Canada's enormous supply of spruce; I need only say that Canada's spruce, while quite equal to that of the northern United States for paper making, is much superior to that of Norway and Sweden, for it affords a feathery pulp which mats well, while the Scandinavian spruce is not a true spruce and affords what might be termed a more slivery pulp which makes a sheet too tender for the very fast-running American machines such as are generally used on this side of the Atlantic.

PROVIDING FOR THE FUTURE.

The paper manufacturers of the United States, in view of the rapid diminution of their home paper supply of pulp wood, have for a long time back been taking anxious steps toward providing for their future, and they have already acquired very extensive areas of timber lands in Canada, to which they are constantly adding, and they are wisely preserving the timber on these lands as well as their lands at home by buying in Canada through jobbers and brokers all the spruce wood they can get from other lands. The International Paper Company already owns in Canada, directly and indirectly, something like 3,000 square miles of spruce lands, mostly in the Province of Quebec. The Union Bag and Paper Company now owns in Canada, and mostly in the Province of Quebec, something more than 2,200 square miles, and about a year ago the last-named company stated to its shareholders as the reason for a reduction in its dividends from 7 to 4 per cent the necessity of acquiring large bodies of timber lands in Canada "on account of the rapid increase in the market price of pulp wood, and in view of the rapid disappearance of the spruce forests of this continent." These are precisely the same reasons which have actuated the International Paper Company—the company owning the greater part of the large paper mills in the Eastern and New England States—in securing all the Canadian timber lands it could get and in buying all the Canadian pulp wood within its reach.

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MUST HAVE PULP WOOD OR SHUT DOWN.

Another important American holding in Canada is that of the Burgess Sulphite and Fiber Company and the Berlin Mills Company, of Berlin, N. H. I do not know the extent of the timber limits belonging to these companies, but it is large, and they have acquired the Lachute water power, on the St. Maurice River, for the purpose of a "rossing mill" for barking pulp wood to be shipped to the New Hampshire mills, the barking being done to save in freight charges. The Battle Island Sulphite and Fiber Company, of Oswego, N. Y., also holds limits on the St. Lawrence, the extent of which I do not know. Many paper concerns in the United States besides those I have mentioned are buying Canadian pulp wood, ground pulp, and sulphite fiber to eke out their supply. Without the Canadian supply of pulps and pulp wood many of the American mills would have to shut down very soon. If they can not get our pulps or pulp wood they must eventually come to Canada to make paper, and every paper mill established in Canada means a town of from 5,000 to 15,000 people and a great addition to the wealth of the country.

WHAT CANADA WOULD GAIN.

To make clear what we have to gain I may say that at present prices a cord of pulp wood, exported as such, yields to Canada and all Canadian interests for cutting, handling, stumpage, transportation, etc., something less than $6 at the outport. This same cord of pulp wood converted into pulp would yield at the outport $19. The same cord converted into sulphite fiber would yield $24, and the same cord converted into paper would yield $37.80; in other words, Canada would get more than six times as much out of her resources in spruce wood by converting it into paper at home, instead of letting it go to foreign paper mills. But Canada is letting her spruce wood go abroad without hindrance, and day by day one of her most valuable assets is being depleted, leaving little more than tree stumps to show for it.

The paper production of Canada largely exceeds the home consumption. The Laurentide Paper Company, at Grand Mere, alone produces nearly twice as much news paper as is consumed in the entire Dominion, but while the Laurentide mills are the largest in the country, there are many other extensive Canadian mills more or less dependent upon foreign markets, and since our paper is excluded from the United States by heavy duties, the only markets open to the Canadian paper makers are those of Great Britain, Australia, and South Africa. These are, likewise, open to the mills of the United States which, although finding an enormous and usually sufficient market at home, have occasion every few years to dump a large surplus into our only available markets.

AMERICAN ADVANTAGES.

The United States get pulp wood in Canada as cheaply as we can. Their only disadvantage is in the difference in the freight they have to pay on this pulp wood from Canada to their mills, but they have advantages which more than offset this. They have a large advantage in the cost of coal, in the supply of skilled labor, in a usually adequate home market for their products, in lower ocean rates, and lower marine insurance on their exports, and in many other things. They have, moreover, an advantage in the first cost of their machinery, in the cost of repairs and maintenance of machinery, and in the cost of their mill supplies, for nearly all of these things we are obliged to import from the United States and pay a heavy duty on them. The duties paid by the Laurentide Paper Company during the last two years amounted to about $75,000, and the duties paid on its original plant were vastly more. It will readily be seen that with free Canadian pulp wood and with their other advantages the American paper manufacturers are able, when it suits their purposes, to take away our foreign markets or spoil them, which they have frequently done in the past. Is it not unfair to the Canadian mills to leave them in such a position?

THE LATE PREMIER HARDY'S WISDOM.

The stoppage of the export of pulp wood from Canada would at least result in the American mills having to buy ground and sulphite pulp from Canada, and at much higher prices than they are now paying for it, and would very soon compel the American owners of Canadian timber limits to come over here with their pulp mills, if not with their entire paper plants. We have an excellent illustration of the effect of such a restriction in the wise policy of the late Hon. Mr. Hardy in Ontario, which very quickly compelled the Michigan owners of Ontario timber limits to abandon their Michigan sawmills and build new ones on the Canadian side, and the mills so brought

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over are now in operation at Amherstburg, Sandwich, Sarnia, and many places around Lake Huron and Georgian Bay, and all of the mills in Michigan which had depended upon Canadian logs have fallen into disuse, and I need hardly point out in this connection that one first-class paper mill is of much greater consequence to the country than a dozen sawmills, the results of the latter being of a more or less temporary nature.

Mr. Hardy placed the same restriction upon pulp wood as upon saw logs, and the result of that is also manifest in Ontario in important pulp and paper mills.

UNITED STATES DICTATES TO CANADA.

It might be well in this connection to recall the understanding under which Canada, quite a number of years, ago removed the export duty of $1 per thousand feet on saw logs in consideration of the reduction on the part of the United States of the duty on pine lumber from $2 to $1 per thousand feet. This was a most unfortunate arrangement for Canada, and resulted in the buying up of a large part of the timber limits north and east of Georgian Bay and Lake Huron by Michigan lumbermen and the closing up of a great number of the local Canadian mills. Later on, during President Cleveland's administration, the Wilson bill was enacted, under which pine lumber was admitted to the United States free of duty, of which we could not complain, but afterwards came the Dingley tariff, which restored the original duty of $2 per thousand, and, lest Canada should resent this violation of the original understanding and impose an export duty on saw logs, the Dingley act provided that if any country or dependency—meaning Canada—should impose an export duty on saw logs the amount of such export duty should be added to the duty provided for on lumber. The same act increased the duty on ground pulp, and to guard against the imposition of an export duty on pulp wood in retaliation, a similar provision was made, and both these provisions stand in the United States tariff to-day. The United States Congress not only made its tariff to suit itself, but assumed to say what Canada should or should not do.

WOULD NOT AFFECT PULP-WOOD SELLERS.

Questioned as to the probable effect of the prohibition in some form, directly or indirectly, of the export of pulp wood upon the individuals who are selling pulp wood from their own lands, Sir William said: I do not think it would have any ill effect, because the Laurentide mills, probably, would buy this pulp wood and pay for it at least as much as the individuals are now getting from the jobbers, and the inevitable and immediate increase in the demand for Canadian pulps would result in the working of every Canadian pulp mill to its fullest capacity and the enlargement of every one of them having the necessary water power, and all of the pulp wood available would be wanted at as good prices as now prevail or better; indeed, I believe that the individuals inside of two years would realize a great deal more from their pulp wood than at any time in the past. The Laurentide Company, although holding more than 1,600 square miles of timber limits, buys all the pulp wood it can get at present prices in order to save its own standing timber, and it attaches such an importance to its own timber preserves that it would be glad to discontinue cutting on its own limits and buy its entire supply from individuals if enough were available. I have already stated that the American owners of Canadian timber limits are doing this very thing to the greatest extent possible.

TIMBER AS A PERMANENT CROP.

I should not dare to estimate the value of Canada's spruce timber ten years hence if some policy were adopted by the Dominion or the provincial governments which would, directly or indirectly, prevent the export of raw wood. The American owners of Canadian limits estimate the possibilities as highly as I do. They do not hesitate to buy Canadian timber limits, because they know that in the event of the adoption in Canada generally of a policy like that of Mr. Hardy's in Ontario they would profit immensely from their timber holdings. I hold that this tremendously valuable asset should be preserved in every possible way; that the provinces having timber should regard it as a permanent crop and apply well-considered regulations to the cutting from crown lands, with a view to promoting the growth of the young timber and to the prevention of forest fires, and that the areas to be reserved for the growth of timber should be carefully marked out and withdrawn from settlement. This would leave an abundance of land available for settlement for a long time to come in all of the timbered districts, for there are everywhere areas which have been either burnt over or cut so clean as to leave no hope of a new growth.

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In the Province of Quebec, and perhaps this is true of other provinces, a real or pretending settler may take up land for farming purposes in any timber limit, and in such a case the owner of the license is given one year within which to cut such timber as the law permits to be cut from crown lands, after which the settler may cut the rest. There is reason to believe that in the Province of Quebec, if not elsewhere, lands have been so taken by pretending settlers at the instance of jobbers in logs of pulp wood, the settler abandoning the land as soon as he has cut all that he finds worth cutting.

NO DANGER OF RETALIATION.

I do not think there would be any danger of retaliation on the part of the United States in the event of some such policy as I have outlined being carried out. I can see no possible ground for retaliation on the part of the United States in view of the precedents which they have themselves already established, and I can think of no form of retaliation that would not be much more damaging to themselves than to us, and they are not given to foolishness of that kind. So far as tariffs go, I do not see that they could make them worse, for the Dingley tariff, which is still in force, was framed for the purpose of excluding everything from Canada which the United States did not need, such as lumber, pulp wood, ground and sulphite pulp, nickel ore, gold and silver ores and turnips, and I do not see that they can make their tariff worse for us now. Moreover, Canada is becoming too big a customer to be lightly treated. For the ten years ending June 30 last the exports from the United States to Canada increased from about $60,000,000 to more than $160,000,000, and Canada is, therefore, a more important customer for the products and manufactures of the United States than Mexico, the West Indies, and all Central and South America together. It is interesting to note in this connection that this enormous increase occurred in the face of Canada's preferential tariff in favor of Great Britain, which prevailed during the last eight of these ten years.

CANADA—THE SOURCE OF PULP-WOOD SUPPLY.

Extract from the Toronto Globe of July 20, 1907, giving the views of Mr. John MacFarlane, president and general manager of the St. Raymond Paper Company, of St. Raymond, Quebec:

Mr. MacFarlane was of the opinion that the Americans were rapidly nearing the time when they would be absolutely dependent upon Canada for the largest proportion of their pulp wood. The demand in their own country for paper was also reaching that stage when they would not be able to ship much abroad, so that this phase of the question was likely soon to readjust itself satisfactorily.

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Mr. MacFarlane's estimate of the pulp-wood areas held by the Americans in the Province of Quebec was 12,000 square miles. "Most of these are at or in close touch with the best shipping points," he said, "and nearly all were obtained from the government." The average increase in the consumption of paper in the United States for the past five years was 14 per cent per annum and that, applied to news, print, and pamphlet, would this year be equal to an increase of 500 tons per day over 1906. That would be equivalent to the output of ten new companies making 50 tons a day or the increasing of the output of the existing companies to that extent. He said: "There are about 1,200 paper mills in the United States, and out of that number there are certainly not over 300 who have any source of wood supply of their own. The others have to obtain it somewhere, and most of them are looking to Canada."

EXPORT DUTY ON PULP WOOD.

Extract from the Toronto Globe of July 20, 1907:

Sir William Van Horne is a firm believer in the imposition of an export duty on pulp wood, and it is impossible to study his statement of the case without feeling constrained to admit that he has put up a strong argument. When the question comes to be dealt with in Parliament, where it will eventually be decided, the facts and inferences he has embodied in his statement will form part of the ground on which the decision will have to be made. The automatic increase of the import duty on pulp

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wood going into the United States as a consequence of the imposition of an export duty by Canada has no terrors for Sir William. This country (Canada) is in a position to do some retaliating on its own account, and if there is to be a war of tariffs it is not without effective weapons. One of these is the preferential tariff.

PULP-WOOD PRICES.

Extract from the Toronto Globe of July 25, 1907, giving the views of a man whose name was not disclosed:

"We are selling pulp wood at $8 per cord, rossed. It is for export, and is all sold to Americans. The price mentioned figures out to about the same price as lumber, but we have this advantage, that what we sell for pulp wood is culled wood; it will not make lumber of good value, and we are glad to get rid of it at the price stated.

"The only result of an exportation duty on pulp wood would be to put the prices up on Americans in certain sections of the United States, because they must have the wood if they are to keep their mills going. But in a number of districts in that country whence the demand for pulp wood comes I am sure they have all they need in their own forests, but they are conserving it, and getting what they can from Canada in the meantime. The idea that an export duty would encourage the establishment by Americans of mills in this country does not appeal to me as a very strong one. There are not many places—in Quebec, at any rate—where there are now suitable water powers for pulp and paper mills. Most of these water powers have been sold.

"One effect of putting an export duty on pulp wood," he continued, "might be to cause the Americans to take off the duty on pulp going into their country, but this is not certain."

The speaker thought that the high prices would continue both for lumber and pulp wood. The fact was, he said, that the Americans, as well as Canadians, were beginning to use spruce in great quantities for building operations, the poorer logs being made into pulp. It was to the advantage of the lumberman, speaking from that standpoint solely, to have the opening afforded by such a double market, so to speak.

Finally, in answer to other queries, he said: "I consider that, no matter how it is figured out, we pay the duty. Prices here are regulated by the United States market. In the past a lot of pulp wood has been sold to the Americans at cost and less than cost price. That time has gone, I think. They are paying excellent prices; we might as well take advantage of that instead of adopting any course which might lead to the cutting off of the trade altogether."

PROHIBITION OF EXPORTATION OF PULP WOOD.

Extract from the Toronto Globe of July 26, 1907:

Mr. F. Howard Wilson of the J. C. Wilson Company, which has a pulp mill at St. Jerome and a paper mill at Lachute, did not agree with the view, quoted in a previous article, that the best available water powers had all been taken up. If there were any held purely with a view to speculation he thought that they could be obtained at reasonable prices. People who did not want to use it for themselves would not be likely to keep a water power for any great length of time unless it was apparent beyond all doubt that in a comparatively short time its value was to be enormously increased by one or a number of circumstances. Mr. Wilson did not favor an export duty unless it was high enough to be prohibitive. He favored rather the absolute prohibition of the export of the raw material which is in such demand by the pulp and paper makers of the United States. "In taking that view," he said, "I am expressing no selfish opinion. As a matter of fact, it would be in a sense against our own interests, because it would undoubtedly result in the establishment of American mills on this side, and there would be that much additional competition for us."

He was decidedly of opinion that there was a serious shortage of pulp wood in the United States, and that the demand for pulp wood from Canada would continue to increase. Of course, Americans who had limits in this country as well as their own would save the latter and take all that they could from the former. That was natural, and he looked for some rapid cutting on a number of limits so held here.

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OUTPUT OF PAPER.

Extract from the Toronto Globe of July 27, 1907, presenting statements of Mr. George Cahoon, jr., vice-president and manager of the Laurentide Paper Company, Grand Mere, Quebec:

On the present basis the company was using about 100,000 cords of wood per year. Last year, he said, about 600,000 cords of pulp wood were exported from the Province of Quebec, and the total revenue to Canada therefrom, including transportation charges, was some $3,000,000 odd. The Laurentide company used something like 90,000 cords during that year, and the value of its finished output was $2,500,000, or nearly as much as the value of the whole of the export trade from the Province. In mere figures alone, this comparison, the inquirer thought, was astonishing enough to be emphasized, but when one takes into consideration what it means in the way of employment, wages, and the general contribution to the upbuilding of the country, as well as the amounts earned by the transportation agencies for the carriage of the finished product to the various markets, they are the cause of still greater wonder.

The company, as was pointed out in Sir William Van Horne's interview, makes some 52,000 tons of roll news paper per year, while the total consumption of that product in Canada is only 27,000 tons. Outside markets, therefore, have to be found for it. That of the United States is practically barred owing to the duty, and Mr. Cahoon commented, as others have done, on the anomalous position of Canada furnishing to the United States the raw material for the manufacture of a product which, when manufactured in this country, is largely shut out of the United States market. The United States, he said, according to the latest figures available, manufactured 3,000 tons of news paper a day for three hundred and ten days in the year, or 930,000 tons per annum. Their increase in the consumption was about 10 per cent, and in Canada at the present time it was something like 12½ per cent. There seems to be no reason why Canada should not practically control the whole of the paper trade in both countries. She has the natural resources. Their proper use and the aid of wisely framed legislation would help bring about such a result.

UNITED STATES—PULP-WOOD MARKET.

Extract from the Toronto Globe of August 1, 1907, giving part of an interview of the Hon. Adelard Turgeon, minister of lands and forests, Quebec:

In the counties of Stanstead, Sherbrooke, Nicolet, part of Compton, Mississquoi, and other adjacent counties, Mr. Turgeon said, there was still a considerable quantity of pulp wood on the lands held by the farmers and other private owners, and an export duty might injuriously affect their sales and the prices they would obtain. This was a matter to which serious consideration would have to be given in any proposition looking toward an export duty, as many of these people sold to Americans for good prices, and their interests would have to be as carefully safeguarded as those of the large limit holders. "It might be, too," he continued, "that the Americans would retaliate. At the present time there is a duty on our pulp going into the United States of, roughly, $2 per ton; $1.90, I think, is the exact figure. The President of the United States is authorized by law to put on an additional duty of $2 a ton if the circumstances arise, and I know that some of our pulp makers and pulp-wood dealers are afraid of this retaliation. After all, the American market is the best for our pulp-wood and pulp. We can not hope to compete in England with the Scandinavian supplies, because of the immense geographical and freight rate advantages the Scandinavian countries have."

Extract from the Toronto Globe of August 6, 1907, in which the views of Mr. A. J. Auger, of Quebec, pulp-wood jobber, are set forth:

I am, however, opposed to an export duty on pulp wood, because I think it would have no other effect than the bringing about of an increase in the prices, and there certainly would, in my opinion, be an injustice to the farmers as well as to many limit holders, who have no mills, if the export was entirely prohibited. It will be a long time before we have in Canada enough mills to use all the pulp wood now being cut. The building of pulp and paper mills requires lots of money and time, and even if the Americans were forced by legislation passed in Canada to come here and build mills, it will be a number of years before they would be ready for operations. Besides, many of them would not come. If forced to it, they could undoubtedly find considerable raw material in their own country for some years hence.

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If they could not, some of them would go out of business altogether rather than duplicate their plants here. Eventually, as the supplies nearest them are cut, we may find some of them of their own accord establishing mills in Canada.

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If Canadians would go into the pulp and paper industry on a large scale, the situation would be altered. Will they do that? It does not seem to me that they will. If they did, it would be bad for the Americans; it would mean that Canada would eventually control all the trade in pulp wood, pulp, and paper.

THE PULP-WOOD INDUSTRY.

On August 8, 1907, the Toronto Globe reprinted a portion of a paper entitled "The Pulpwood Industry," by Herbert M. Price, president of the Province of Quebec Pulpwood Association, which was read at the forestry convention at Ottawa in January, 1906, and which was published in The Pulp and Paper Magazine of Canada of that month:

The question of an export duty being imposed by Canada on pulp wood has been much discussed, but I feel that the safest course, and the wisest one, is to let things remain as they are, for I believe this policy conduces to the interests of the many. We can not afford to lose an export wood trade of $3,000,000 a year, and wait for possibly many years before a home market is found. This country's resources are so immense in pulp wood that we can afford for some time yet to export the raw material, and until we are able to find capital to build up mills to manufacture and export the product; besides, the building of pulp mills in Canada, apart from paper mills, is not particularly encouraging at present.

"ALMOST UNLIMITED" SUPPLIES AGAIN.

When we consider the enormous and almost unlimited supplies of pulp wood derivable from the north shore of the St. Lawrence River alone, we can safely feel that this question may be left where it is for the present. New supplies are constantly coming into sight, and I may mention the Island of Anticosti as one of these, which will probably prove itself to be a shipper of pulp wood and pulp on a large scale in the near future. The country between Quebec and Hamilton Inlet, a distance of over 750 miles in a straight line, is a fair reserve for the future. We are not doing posterity a wrong as regards this question of an export duty by not agitating it now. Hon. Mr. Parent, when premier and minister of crown lands of the Province of Quebec, in his speech on the pulp-wood question in April, 1903, stated that there were 62,592 square miles of crown lands under license, and 100,000 square miles of absolute forest not yet under license, making 162,600 square miles of crown timber lands, amounting to 104,000,000 acres. Since that date the mileage under license has increased to over 67,000 aquare miles.

Besides the above there were some 20,000,000 acres of seigneuries and patented lots, the larger proportion by far being timbered.

WHAT MIGHT BE THE RESULT.

The depreciation in value of timber lands in the event of an export duty would be very considerable, as the duty, in order to meet the views of its advocates, would have to be made heavy enough to make export prohibitory. It would also stop for an indefinite time the purchase by Americans and others of our unsold timber lands, and would certainly decrease the resources of the provincial governments owning same.

Further sales of government timber lands could not be made to advantage, and it would inflict a heavy blow on all spruce limits now under license. Thousands of square miles of timber lands would lie unworked for years, with consequent loss in settlement and population.

The question of retaliation by the United States Government I do not discuss, but it is a factor in the case, although I feel strongly that we must draw the line somewhere as regards concessions. A policy of reciprocity, if obtainable, would be preferable to inaugurating a tariff war.

Pulp wood has been the means of saving waste in the woods where made in connection with logging operations.

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A certain portion, and by no means a small one, of our northern spruce-producing country can not be developed to advantage by the building of pulp and paper mills, but the pulp wood on same can be stripped to very great advantage.

Extract from the Toronto Globe of August 10, 1907. The words are those of Mr. J. T. Rundle, manager of the Miramichi Lumber Company, which ships considerable pulp wood to the United States:

The argument, as I understand it, is that an export duty would compel the location of the pulp mills here. But is it not against all reason to expect that people are going to build pulp mills where they will not pay? And from what I can hear they do not pay, or have not done so in the past in this province, at any rate. Good water powers are few in this province and coal is comparatively expensive. A pulp mill can not be run without ground wood; to get that you must have good water powers to work your mills, and steam power is too expensive.

PULP WOOD AND EXPORT DUTY.

Extract from the Toronto Globe of August 19, 1907, giving the views of Mr. Carl Riordon, general manager of the Riordon Paper Mills Company, with mills at Merritton and Hawkesbury, Ontario:

THE GOVERNMENT HAS THE AUTHORITY.

The Dominion Parliament has already authorized an export duty on pulp wood, which can be put in force at any time by order in council, but I think the situation would be better met by an absolute prohibition of the export, so that wood would be reserved for Canadian industries. I feel sure that these would soon be established to an extent that would use all the wood for sale by legitimate settlers, because the United States firms now importing pulp wood from Canada would be obliged to move their mills over here. At the present time United States mills own water powers on the Miramichi, Jacques Cartier and St. Maurice rivers, so that they have already one essential to the establishment of pulp and paper mills here. The lack of water power is not, however, so serious an impediment as it is supposed to be. The city of Kalamazoo is the second largest paper-making center in the United States, and there is no water power there whatever. The water power is essential to the paper mills only where ground wood is made. At Kalamazoo they make finer paper largely out of chemical wood pulp.

It seems an extraordinary thing that the Dominion government has taken such a great deal of trouble to foster the steel industry and done so little for the pulp and paper industry, in view of the fact that the latter is the industry of all others in which Canada should lead the world.

WHAT UNITED STATES MIGHT DO.

I think the United States Government would endeavor to have the prohibition of pulp-wood export stopped by offering to take the duties off pulp and paper, but it seems to me they will have to take those duties off anyway, because they have become a burden to their own people. The paper industry there is old enough to need no further protection and can not be made any better by it; and their working people do not need protection from us because our wage rates are equal to theirs. Also, the West is oppressed by the duty on pulp, because the eastern mills are able to get wood from Canada so much more cheaply than the western mills that they are able to undersell them in their own markets.

FARMERS WOULD NOT SUFFER.

I do not think there is any doubt but that the Canadian mills could and would buy all the wood that the Quebec farmers have for sale at as good a price as they are now getting if the Canadian mills had the protection that the prohibition of export would give them, and the new construction that this protection would bring about would soon make the market larger than ever. Our company are at the present time using from 90,000 to 100,000 cords per year, and we buy a considerable portion of it from farmers.

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PULP-WOOD AREAS OF ONTARIO.

Extract from the Toronto Globe of August 24, 1907, giving the opinion of the investigator on the pulp-wood areas of Ontario

Ontario's pulp-wood areas are vaster than some of the nations of Europe. One may travel from east to west for a day and a night and a day before he has crossed the base line of the Ontario section of Canada's almost boundless pulp-wood lands. In the wooded areas north of the Great Lakes up to the height of land and down the northern slope of the shores of Hudson Bay, the earth is blanketed with a mantle of dark green ascending trees, so vast that small nations might be dropped there and remain almost unnoticed.

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Vast! The word describes the extent of Ontario's pulp-wood lands in the truest Canadian understanding of the term.

I have deliberately endeavored in these introductory lines to drive home this impression of largeness, for I hope to dispel by anomaly another popular but erroneous idea that the pulp-wood resources of Canada are inexhaustible. Vast as the pulp-wood areas of the nation unquestionably are, they are as vulnerable as the herds of buffalo that thundered in hundreds of thousands over the prairies and then vanished. These forests are as vulnerable as were those of the Adirondacks and of northern New York, which gave way day after day and year after year before the portable mills of unscrupulous owners until the industry disappeared, the trapper vanished, and only charred, dry stumps were left to tell the story of the vandalism of an inconsiderate generation.

* * * The pulp lands of Ontario comprise a belt extending from the Quebec boundary westerly nearly 1,000 miles and lying to the north of the height of land on streams tributary to the Moose and Albany rivers flowing into James Bay. This area has an average depth north and south of nearly 150 miles, the most densely timbered portion lying beween the eastern boundary of the Province and Lake Nepigon, north of Lake Superior, although tree life suitable for pulp-wood material extends westerly beyond this 300 miles.

Ontarior's pulp area is 80,000 square miles, or approximately 51,000,000 acres. In the present conditions of the pulp and paper market it must command the attention of foreign and domestic capital, as well as the thoughtful consideration of the Canadian people.

Extract from the Toronto Globe of August 30, 1907, article written at Sturgeon Falls, Ontario, by the investigator:

AN ESTIMATE OF THE AMOUNT.

Some progress has been made in the exploration of this great pulp-wood wilderness. Two thousand miles of base and meridian lines have been run through different parts of the territory since 1890, and some 85 or 90 townships, comprising 2,500,000 acres, have been surveyed and official information concerning that territory is obtainable. This is of course but a fraction of the 51,000,000 acres of lands comprising the pulp-wood area.

A semiofficial estimate of the pulp-wood within the Province places the figures at 300,000,000 cords, or about 6 cords to the acre. Men who have traveled far into the north assert that this estimate is far too generous, and that 200,000,000 cords, or 4 cords to the acre, would be more nearly correct. It is interesting, however, and only just to the gentlemen who made the official calculation, to consider the basis on which the estimate has been arrived at. On one of the base lines run west from the Quebec boundary, in latitude 49° 39′ 30″ north, for a distance of 300 miles, which line passes through nearly the center of the great northern clay belt, the entire country was found to be a dense forest of spruce, poplar, balm of Gilead, jack pine, and birch, the spruce running from 4 inches in diameter up to 30 inches, and the poplar to about the same dimensions.

DENSE PULP-WOOD FORESTS.

One of the oldest surveyors in the Province, Mr. Alexander McNiven, in describing the timber along his base and meridian lines run last season between Missinaba and the Mattagami rivers, describes the timber as follows: "The timber is nearly all spruce, generally red or black, from 4 to 14 inches in diameter. White spruce and poplar

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occur along the banks of the rivers and on the more level portions of the country, much of which is of large size, running up to 20 and 30 inches in diameter. Balm of Gilead of large size is found in many places. White birch is found on some of the higher portions of the country, of good size. Balsam is frequently intermixed with other kinds of timber."

Mr. O. L. S. Speight confirms this official testimony, and from his statement it appears that in the 85 surveyed townships the country is a dense pulp-wood forest.

Whether we accept the estimate of 300,000,000 cords from official sources or the estimate of 200,000,000 cords from less sanguine residents of the far north, the figures stagger the imagination. The pulp-wood assets of the Dominion of Canada constitute a national fact overshadowing many others in their bearing on the industrial future of the country. An improvident course must in time leave the blight of denuded lands and starved waterways. Without entering at this time into the question of export restriction or governmental considerations, the first duty that seems clear is to save the pulp-wood forests for all time from commercial vandalism.

Extract from the Toronto Globe of September 3, 1907:

The Grand Trunk Pacific Railway, according to departmental advices, will pass through almost the center of the great northern clay belt, which is supposed to contain an area of nearly 16,000,000 acres of land. Almost throughout its entire length within the boundaries of Ontario the railway passes through a dense forest, in which up to the present time not one tree has been cut for commercial purposes. The railway intersects nearly all the larger tributaries of the Moose River. It also crosses and parallels several large streams flowing into the Albany River and the headwaters of many streams flowing into Lake Nepigon.

The importance of these conditions will be apparent when it is stated that the streams provide many excellent water powers. These are economically necessary in the development of the pulp-grinding and paper-making industries, and it must be remembered also that the existence and permanency of these water powers depend upon the preservation of the forests which clothe the watersheds.

RICH IN WATER POWERS.

The waterways of the north were placed by divine arrangement as though with especial consideration to some great industry based upon the forests which blanket their watersheds. Commencing at the eastern boundary of the province, the first large body of water touched by the Grand Trunk Pacific is Lake Abitibi, which drains a large area and is a suitable location for the pulp mills of the future. Continuing westward the railway crosses the Abitibi River, Frederick House River, the Mattagami, Ground Hog, Kapuskeasing, Opazatika, and Missinaibi rivers, and the tributaries of the Moose River, the smallest of which has an average width of not less than 200 feet and several of them a width of not less than 800 feet. These streams all have their source in the country along the height of land, and flow north in many instances over a hundred miles before they reach the Grand Trunk Pacific. On all these streams can be found large quantities of pulp wood, which may be floated to the pulp mills on or near the railway.

The topographical advantages of the great north country can not be fully dealt with on this occasion, and it does not require a commercial or industrial genius to realize that before many decades great pulp mills—and paper mills, perhaps—will afford the basis for the employment of thousands of workmen and a profitable source of investment for millions of capital.

Westward from Lake Nepigon for a distance of 100 miles pulp timber still continues, but varies in quantity and quality as the tree life disappears toward the prairie and because it has been burned over frequently.

It has been carefully estimated that in a belt of land 150 miles wide and extending 500 miles westward from the boundary of Quebec there is sufficient pulp wood to supply at least 100 large pulp mills for generations to come, or, if properly protected, throughout all the ages. One hundred large paper mills could also live in this area without further loss of material. They would be of infinite benefit to the industry and financial welfare of the country.

DUTY ON PULP AND PULP-WOOD PRICES.

Extract from the Toronto Globe of September 20, 1907, presenting the views of Mr. John R. Barber, of Toronto, president of the William Barber & Bros. paper mill at Georgetown, of the Toronto Paper Com-

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pany's mills at Cornwall, of the Barber & Ellis Company, envelope manufacturers, vice-president of the Spanish River Pulp and Paper Company, and vice-president of the Canada Coated Paper Mills at Georgetown:

A sign of the feeling in the United States was given at the meeting of the publishers of newspapers held last month for the purpose of formulating a demand for the free admission of Canadian paper and pulp. They will be supported in part by quite a large number of American paper makers, who want Canadian pulp free of duty, but do not want the paper admitted on the same terms. My opinion is that there will be a compromise of the conflicting interests by admitting wood pulp free without any change in the present duty on paper. If the United States does not want our news paper other nations do, and with our ample supplies of wood and splendid water powers we can manufacture so as to undersell them in any foreign market.

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Questions as to the preservation of the forests, with a view to the perpetuation of the pulp and paper making industry in Canada, were gone into at some length. Mr. Barber thought that the woods should be leased to the paper companies, and that some plan should be devised whereby they would aid the Government in a more thorough system of guarding against fires. He also believed that the size at which a tree might be cut should be limited to 7 inches. Spruce reproduced itself within thirty to thirty-five years, and proper cutting and guarding against fire would insure continuous crops.

THE UNITED STATES DEMAND.

Discussing the increasing demand in the United States for Canadian pulp wood, Mr. Barber said that heretofore it had been almost entirely from the Eastern States. Only a little of it had gone to the Western States. Last spring, however, Wisconsin and Michigan, where supplies had, as is usual, been considered inexhaustible, woke up to the fact that there was not enough wood within their borders to keep their paper mills running. Instead of blazoning their plans broadcast, the paper makers got together quietly and appointed a joint buyer, who went into the Province of Quebec and bought for the mills. He made contracts wherever he found that the cut was not already under contract, not alone for the one season, but for future seasons. When the eastern mills representatives went into the province at their usual time they found that a march had been stolen upon them, and that what wood they could buy, where it was not already under contract, was high in price. Instead of combining with a view to doing the best they could for all, they adopted the usual Yankee plan of "every man for himself," buying a little here and some there, and putting the prices up still higher. Another factor also enhanced prices last season, namely, the high prices on lumber and the fact that the woodsmen were so busily engaged in cutting it that there was not so much pulp wood cut as the demand warranted. About the beginning of August, when the situation was becoming easier, a majority of the eastern states mills had to shut down owing to lack of water, and, with lots of pulp wood in their yards, had to come to Canada and buy pulp. Then it was found that the paper mills in competing with each other had put the prices of ground wood pulp, which had been $12 to $14 at the mills, up to $22 to $25. The resultant effect on the price of paper was an increase of about one-half a cent a pound.

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Mr. Barber did not think that an export duty or the prevention of the export of pulp wood would result in the establishment of mills by Americans on this side of the line. Those who now had their money invested in mills, which are very costly, would not care about duplicating their investment here so long as they could get supplies from any source at prices that would permit a profit, however small, comparatively, to what they had obtained before. In closing the interview he declared that to his knowledge there was no truth in the stories of combines of pulp-wood dealers and pulp and paper makers, either in Canada or the United Staees.

PULP, PAPER, AND ALLIED INDUSTRIES OF CANADA.

Article in the Toronto Globe of February 29, 1908, entitled "The Pulp, Paper, and Allied Industries of Canada," by E. B. Biggar, editor of the Pulp and Paper Magazine, of Toronto:

In responding to the request for some facts concerning the pulp, paper, and allied industries of Canada, I wish to congratulate The Globe on its campaign of education in favor of a new Canadian forestry policy. It is a statesmanlike idea and I am con-

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vinced that there is no movement the press can engage in which will have so profound an influence for good upon the material condition of the Canadian people in the future as this.

Of course the forestry problem is greater than any question involving only the fate of the pulp and paper trades, but in the development of our complex civilization the products of the pulp and paper mills form an element that grows more vital and more ramifying each year. Further than this, the position which Canada occupies as the possessor of over one-third of the water powers of the world, with a greater area of paper-making timber than is now left to the lot of any other nation, and as the home of a people unequaled for their skill in woodcraft, assures to our pulp and paper industries a preeminence which can be jeopardized by only one thing—our own failure to realize our opportunity.

To appreciate what the products of the pulp mills already mean to our industrial life and to what degree their importance will grow in the near future we have only to review the development of our neighbor nation, the United States. Although experiments had been made in the production of paper from cellulose, or wood pulp, as early as 1844 in Europe, and the process was introduced into the United States in 1854, the improvement by which it became commercially successful was not employed until 1867, and it only became a regular industry about 1870. At this date eight establishments were reported, whose combined annual product was worth $172,350. Ten years later there were fifty establishments reported, with an annual product of $2,256,946.

In 1850, in the days of rag paper, there were in the United States 443 mills, whose capital was $7,260,864 and whose product was valued at $10,187,177. By 1880 there were 742 establishments, with a capital of $48,139,652, producing paper and pulp to the value of $57,366,800, while in 1900 there were 763 establishments, comprising over 1,200 mills, with a capital of $167,507,713, producing paper and pulp to the value of $127,286,162, showing a remarkable expansion in the capacity of the mills and the value of their output. By 1905 the capital had again increased to $277,445,471 and the value of products to $188,715,189, while the mills paid out wages to the amount of over $38,000,000. Besides this home manufacture, there was imported into the United States for its own paper mills in 1905 pulp to the amount of 167,504 tons, valued at $4,500,000, and of paper to the value of $5,623,636, and paper stock, $3,796,595. The exports of American-made paper and manufactures of paper were $8,238,088. This takes no account of the miscellaneous industries—growing in number every year—whose raw materials are paper and pulp in some form and whose annual value of output would make a vast total.

From being made of rags and miscellaneous fibers, the course of the industry has been changed till nine-tenths of the paper is made of wood pulp, the spruce, balsam, poplar, and hemlock woods forming the chief supply, not only for making paper but for the numerous articles that are now turned out from pulp, such as pulp boards, sheathings, and linings in structural work, leather board, pulp bottles, boxes, and cases, indurated fiber ware, molded figures and designs for interior decorations, wall and floor coverings, wood flour, etc.

But since this revolution has been brought about in the paper industry of the United States and new uses for wood pulp are being announced every week in America and Europe the consumption of pulp-producing woods has increased till the people of the United States have awakened to the fact that the supply of pulp timber in most States is practically exhausted, while over the whole Union the consumption has far outstripped the reproductive capacity of the forests. Up till two years ago this was denied by those interested in certain departments of the American pulp and paper trade.

Now, when the mills in Wisconsin—planted in the midst of what was regarded as a perpetual supply—have had to import pulp wood to the extent of 70,000 cords during the past season, all the way from Quebec by rail, while some of the paper mills of Maine—the State of "inexhaustible" spruce limits—are getting supplies of wood from New Brunswick and Quebec, the American famine in pulp wood can no longer be denied.

During the year ending June, 1907, the United States imported pulp wood from Canada to the amount of 650,366 cords, or enough to manufacture, say, 520,000 tons of news paper, while its imports of ground pulp from Canada were 149,827 tons, valued at $3,230,272. Besides this, it imported pulp from other countries, chiefly Norway, to the amount of 63,283 tons, valued at $3,118,585, largely chemical pulp. These are official figures of the United States, but while the Canadian official returns show an export to the United States of 452,846 cords in the nine months ending March, 1907, or at the rate of over 603,794 cords for the year, it is the opinion of The Pulp and Paper Magazine, that the actual quantity of pulp wood shipped to the United States amounts to from 800,000 to 1,000,000 cords per year. This opinion is based on the fact that the

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records of the cordage of exports of wood, which is not dutiable, are loosely kept; that large quantities go out of Canada from border streams, like those between Maine and New Brunswick, without any record, and large quantities go similarly unrecorded from remote shores of Georgian Bay and Lake Superior across the Lakes.

According to a special report of the United States Census Bureau the consumption of domestic spruce wood used by United States pulp mills increased 47 per cent in quantity, and 122 per cent in price in the five years from 1900 to 1905, while the consumption of Canadian spruce wood by United States mills increased 102 per cent in quantity and 150 per cent in price in the same period. The average cost of wood used for mechanical and chemical pulp was more than doubled in the five years named, for every variety of pulp wood except domestic poplar. Canadian poplar had increased 176 per cent. If these percentages could be applied to the conditions in 1907 the increase would be still greater.

To illustrate the nature of the crisis towards which the United States is swiftly tending we may turn to the mills of New York State. This State has 108 mills, largely clustered in the northeastern counties, accessible to the great spruce forests of the Adirondack Mountains. Twenty years ago the mills of Watertown, the chief paper-making center, had supplies of pulp wood at their doors, and it was believed the timber would last forever. Now the source of home supply is 80 or 100 miles away, and an increasing proportion of mills have to get their wood from down the St. Lawrence in Quebec or by rail from that Province at a distance of 200 miles or more. The mills of this State have a yearly capacity of 987,000 cords of wood, and on the basis of a growth of 10 cords an acre they would strip nearly 100,000 acres a year, and if the lumber cut off this region (estimated in the census at 245,000,000 feet a year) is added, the whole spruce areas of the Adirondacks would be wiped out in seven years were these mills confined to their own State for raw material.

Unable to secure supplies at home, many United States paper-making concerns have recently bought large tracts of forests in Canada, the aggregate of these purchases in Quebec and eastern Canada already exceeding 25,000 square miles, while additions to these purchases are being made every month. The Union Bag and Paper Company, one of these companies, frankly explained to its shareholders as the reason for reducing its dividends that it was necessary to acquire large bodies of timber in Canada "on account of the rapid increase in the market price of pulp wood and the rapid disappearance of the spruce forests of this continent." According to the Wall Street Journal, the International Paper Company, which controls over 30 mills, has in a little over a year acquired 1,255,000 acres more of timber limits, most of them in Canada. As this country is the only source of wood supply outside its own borders, it is apparent that if the export of pulp wood from Canada were cut off the paper manufacturing industry of the Republic would collapse.

Let us now look at the situation at home. The first paper mill in Canada, says the Pulp and Paper Magazine, was started at Jacques Cartier, Quebec, by a Mr. Jackson in August, 1800, and was in successful operation till 1857. The second mill was started at St. Andrews, Quebec, in 1803, the same year in which the Fourdrinier machine, which was to revolutionize paper making, was introduced into England.

According to the census of 1851, Upper Canada had 5 mills and Lower Canada had also 5. The census of 1871 gave 12 mills to Ontario, 7 to Quebec, 1 to Nova Scotia, and 1 to New Brunswick. The census of 1881 recorded 36 paper mills and 5 pulp mills.

The subsequent progress of the pulp and paper industry is recorded in The Pulp and Paper Handbook of Canada in the various editions, as follows:

Pulp mills.

Year.	Number of mills.	Total capacity in tons per 24 hours.
1888	34	154
1892	37	312
1899	39	1,145
1907	58	2,361

The total capacity of the mills producing chemical pulp by the sulphite and soda processes in 1899 was about 500 tons per day and in 1907 about 550 tons per day, so that the increase in the last eight years has been almost wholly in mechanical or ground wood pulp.

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Paper mills.

Year.	Number of mills.	Total capacity in tons per 24 hours.
1888	40	173
1892	38	209
1899	33	328
1907	46	966

The era of manufacturing pulp from wood in Canada began in the decade of 1880–1890. The yearly capacity of its pulp mills at the present time is about 700,000 tons of pulp and 290,000 tons of paper. Pulp first figures in the trade and navigation returns of Canada in 1890, when the total export was valued at $168,180, of which $460 went to Great Britain, $147,098 to the United States, and $20,662 to other countries. In 1897 the total export was $741,959, of which $164,138 went to Great Britain and $576,720 to the United States. In nine months of the fiscal year ending March, 1907, the export of pulp was $2,984,945, of which $558,600 went to Great Britain, $2,397,448 to the United States, and the balance to France, Mexico, Japan, the West Indies, and Italy.

The exports of Canadian-made paper in the nine months of 1907 were valued at $1,657,740, besides $20,412 of wall papers. Great Britain was the largest importer of paper, the amount sent to that country in the nine months being $920,272, to Australia $333,326, New Zealand $139,687, and to the United States $109,273. This is a large increase in recent years, the exports for the whole of the year of 1903 amounting to less than $900,000, including wall papers.

Nature has marked out Canada to be the leading pulp and paper manufacturing country in the world, if we make the right use of the resources a beneficent Providence has given us. To make mechanical pulp economically cheap water powers are needed, and these we have. The quality of our wood and the quality of the labor to handle it are both unsurpassed by any country in the world.

But what will happen if the unrestricted export of wood drains the country of the raw material upon which these industries are founded? We will be like the drunkard who, after spending his time and money in the saloon, finds himself kicked out in the street, unpitied by those who have despoiled him. This analogy goes deeper than may appear at first thought, because if we allow our land to be stripped of its forests we not merely deprive our posterity of the great benefits of these industries, but we commit the greater crime of crippling our water powers and turning our fruitful lands into deserts, as is made clear by those writers who deal with the forestry aspect of the question.

But the export of pulp wood is poor business from every standpoint. When the present accessible areas are stripped bare to supply American mills it will cost the country millions of dollars to build railways to tap more remote regions, and meanwhile all we shall have derived is the paltry price of pulp wood to the landowner, plus the freight, which is in the lowest scale fixed by the transportation companies. The more such a raw material goes freely out of the country the more strongly intrenched does the industry become in a country which competes with our own, both abroad and at home, and the longer delayed will be the period when our own products will have a permanent hold upon foreign markets.

In comparing the improvident policy of unrestricted exports of pulp wood with a national forestry policy, combined with a national pulp and paper policy, the writer recently gave the following illustration: The value of a cord of spruce pulp wood shipped from the eastern townships to the United States four years ago was about $3.50 per cord, while a cord shipped in 1907 is worth $6 to $7 in the rough, or $8 to $10 when peeled. To the latter value—the highest valuation in the history of the Province and being in itself a confirmation of the preceding statement as to developments in the United States—add the average railway freight ($3 a cord), and the money left in the Province from the export of the cord of wood is, say, $10. Now, if the same cord of wood is made into ground pulp in Canada, the result would be $20 per cord, and if it were manufactured into news print the value would be $45 per cord, or if into paper of the higher qualities, the value would be $50 to $100 per cord. Applying these results to the pulp wood exported from Canada and taking the returns of the nine months of the official year as correct, the wood now exported to the United States would, if made into paper in Canada at an average of $50 per ton, yield a product worth over $30,000,000 a year. On the basis of the real totals of exports the product would be over $40,000,000, and to this must be added the increased manu-

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facturing in lines of industry that would develop where the raw material is some form of manufactured pulp or paper, such as already noted, perhaps doubling that total.

Beyond this advantage is the benefit to the farmers, merchants, and railways from traffic created by the towns in which such industries would be seated. The railway freight tariff, for example, on pulp wood is one of the lowest in the scale of freight rates. On pulp it is double that on pulp wood, and on paper about ten times, while the value to the railway of the traffic arising from the miscellaneous transactions of a town is a hundred or a thousand times greater than the hauling of a crude material like logs.

There is no side from which this problem can be viewed that does not show it to be the part of wisdom to conserve and develop our own resources. In such a policy there is no antagonism to the United States; it is simply an act of self-preservation. The Americans themselves are endeavoring, at painful present sacrifices, to restore the forests they have lost, and they can not blame us for doing now in our own interest that which they, had they realized the tremendous consequences of forest destruction, would have done years ago, without thought of the effect upon Canada.

Let us therefore be wise by others' follies rather than by our own.

EXPORT OF PULP WOOD.

SPEECH OF MR. E. N. LEWIS, M. P., IN THE HOUSE OF COMMONS, OTTAWA, WEDNESDAY, MARCH 11, 1908, ON THE EXPORT OF PULP WOOD.

Mr. E. N. Lewis (West Huron) moved:

"That in the opinion of this house such an export duty should be placed on the export of pulp wood as will be sufficient to induce its manufacture into paper in Canada, and thus save to the labor of Canada the six millions of dollars now lost."

He said: Mr. Speaker, my object in proposing this resolution is to bring to the notice of this house and of the government of Canada the question of the pulp-wood industry and whether or not it is advisable for the government to take such steps as will encourage the manufacture of pulp wood into paper in this country, and thus save to the working people of Canada the many millions of dollars now lost to them.

Manager Clouston, of the Bank of Montreal, says: "Canada is fast using up her timber resources." He calls a halt and urges action toward preserving the nation's wealth. The following from the pen of William Banks, jr., the Globe envoy who made a special study of the pulp question on the spot, appeared in the Globe of July 11:

"In other words, Canada is furnishing to Wisconsin, New York, and other States of the Republic to the south the raw material to be manufactured into goods which come into competition with the manufactures of this country in the markets of the world. What is Canada getting in return? Practically nothing. True, the land is left; there are also stumps of trees; a comparatively small amount is obtained for labor and transportation; and that is all; while around the American mills, whose hungry maws would have no food, or not enough to satisfy them at any rate, were it not for the raw material furnished them from the Canadian side, there are busy, thriving, and expanding communities. The Americans are taking pulp wood while the sun shines, so to speak; and without being unkindly, it would at least seem as though their attitude, while they are so doing, is that of the man who smiles at his neighbor's uneasiness and occasionally puts his tongue in his cheek when the situation is made the subject of conversation."

I appear for the people as against the great corporations, both in Canada and across the border; but I regret to say that generally the people are handicapped, either by the lack of concerted action or the lack of funds, from utilizing to the full the great power of the press.

The newspaper press is the great dominant and practically irresistible force in all great questions. The corporations realize this, and hundreds of thousands of dollars are spent annually in promoting the corporation side of questions which affect them. Railways, telephone companies, insurance companies, mining companies, fill to overflowing the advertising space of our prominent daily papers in the United States and Canada, and, I ask, at whose expense?

It is naturally so. Human nature is human nature, and papers must live, but again I ask, Mr. Speaker, who pays for the full-page advertisements of those fine mining allurements, The Golden Dog or the Silver Fox, in which half the produce of the stock goes to the promoters and half to the newspapers? The development frequently goes minus, and the shareholders ditto.

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But, Mr. Speaker, I am glad to say that I have a subject now, a live subject and a vital one, in which I feel sure the press will use its great influence solely on the side of the people, partly because it is the right side and partly because there is no other great question in which the press is so closely interested as the pulp-wood question.

For years we have grumbled because England made bad business arrangements for us with the United States. Now we have the opportunity to make our own bargain or laws in a vital issue affecting our national prosperity and future. Let us do so in a national manner and in a way befitting a nation, not from a political or other point of view. Let us throw aside and reject all advice or pressure which may induce us to do or make a political deal. Joseph Clark, a well-known Canadian writer, said: "Canada has been mentioned in the dispatches; the United States, high protectionist as it is, has spoken. President Roosevelt in his message to Congress says: 'We are out of pulp wood; we supply the world with paper. I advise you, if possible, to make a bargain with Canada. Take off the United States duty on pulp wood if Canada will agree not to impose an export duty.'"

And Mr. Clark further said: "There is one thing about these neighbors of ours; they always know what they want and why they want it. They barred out our pulp just as long as they had pulp of their own. Now they say: 'We are up against a paper famine; we already feel the pressure of it; the price of news paper has doubled. Don't do what we would do in your place. Do not force our paper mills to move to Canada; do not draw this vast industry to yourselves; feed your forests into our mills.'"

Statesmen at Washington have laughed until their sides ached when jurists of repute returned and told of the deals they had pulled off.

The United States Wall Street Journal says the International Paper Company, which controls over thirty mills, has in a little over a year acquired 1,255,000 acres more of timber limits, most of them in Canada. It is apparent that if the export of pulp wood from Canada were cut off, the paper manufacturing of the United States would collapse.

You will notice, sir, that I am not forcing any opinion of my own on the house. I am simply stating facts and conclusions formed from those facts, and giving opinions of gentlemen of experience and knowledge in the premises. Here are two statements, one from prominent political Quebec leaders, the other from a Congressman of the United States. Let me quote from the Gazette, March 6, 1908:

"The government congratulated themselves, Mr. Leblanc went on, over their crown land reports. It showed that 100,966 cords of pulp wood had been exported during the year. For this Canadians received $6 per cord. The speaker asked his hearers to go to the directors of Canadian paper manufactories and find out that for every cord of pulp wood turned into paper in Canada, Canadians received from $48 to $50, most of which meant wages for Canadian workmen."

The premier, Hon. Mr. Gouin, in reply, said:

"Hon. Mr. Leblanc had blamed the government for the exporting of the pulp wood, but the government was not to blame for that, as there was only one power that had the right to impose an export duty on pulp wood, and that was the federal administration. The premier thought it would be a good idea to have a commission to investigate this question and report whether a duty should be imposed."

Let me now quote what Mr. J. Tirrell said in the Washington House of Representatives:

"If there are gentlemen on this floor who wish to see that industry wiped out, who wish to throw out of employment tens of thousands of American wage-earners and have them walking and moaning on the streets; if they wish to see the smoke and fires extinguished of the 108 mills now in the State of New York, and the mills of the West, and the industry hampered so that it no longer becomes a factor in the commercial development of the country, then it is only necessary to wipe out the tariff on pulp and paper and give to Canada the power to pass prohibitive export laws and close all the mills of the United States."

While, sir, pulp wood is a raw material of comparatively low value, it produces manufactured articles of high cost.

Millions upon millions of spruce logs, hundreds of thousands of cords of pulp wood go yearly from Quebec, New Brunswick, and Nova Scotia to feed the pulp and paper mills of the Eastern, Middle, and Western States.

What does Canada get for this?

1. The government not $1 a cord.

2. The chopper, the loader, the river driver, the teamster, the peeler, not much more.

3. The railways a low rate on coarse freight. The whole result $6 or $7 per cord left in Canada—I give a maximum figure; $6 is absolute. Why, sir, they don't even allow us to carry the pulp wood in Canadian vessels. I have here a list of 14 steam-

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ships carrying pulp wood last season from Quebec ports to Wisconsin ports, 12 of which are United States vessels and 2 Norwegian.

Now, I repeat again, $6 or $7 left in Canada for every cord of pulp wood leaving it. Watch, the value grows afterwards. Every cord of wood ground to pulp has a value of $20. Every cord of wood made into fiber has a value of $30 to $32. Every cord of wood made into paper has a value of $40 to $45 and up. My resolution asks this government to take such action as will save to the labor men of Canada the $6,000,000 lost annually. I firmly believe that $20,000,000 would be nearer the mark. The United States shuts out our finished product paper, but takes our crude product pulp wood, makes it into paper, and undersells us in Europe with their surplus dump.

If the facts were properly placed before the farmer who has pulp wood for sale, he would see that he would be helped by an export duty more than anyone else. The sale would be just as great and more people would live in his neighborhood to use his other products and make his farm more valuable. If an export duty were to be put in force, sufficient mills could be removed to or built in Canada in eighteen months to supply the world.

The pulp and paper industry gives more healthy and steady day and night employment to a larger number of men and women at higher wages all the year round than any other industry in Canada.

We have no desire to prevent our American cousins having newspapers to read, but let them get our forests in the shape of the manufactured article. What happened when the Liberal government of Ontario restricted the export of saw logs? Sawmills started humming in all directions, factories followed, the United States sawmill men came over here, and we were glad to have them. We will welcome the paper manufacturers also. The leading pulp and paper journal of the United States asked a question of the trade as to the results of an export duty. One answer was:

"Would probably mean United States capital would cross the border and build mills, pay rolls would go to Canadian labor instead of United States."

Another answer was:

"It will simply build up the industry of Canada."

Now, let me give a few statistics on this subject. I would ask honorable members to bear in mind the difference between the wood pulp referred to in the first of these tables and wood for pulp. The following figures show the value of wood pulp and wood sent to the United States for the year ending June 30, 1907:

Canadian wood pulp exported to United States, year ending June 30, 1907.	$3,230,272
Wood for pulp, 650,366 cords	2,792,751
Total	6,023,023

Now, according to United States Bulletin No. 80, pages 18 and 19, the value of paper per ton ranged in 1906 from $41.61 for heavy wrapping to $348.02 for fine Massachusetts. The tariff of 1887, which places a duty on Canadian pulp, contains this provision:

"If any country shall impose an export duty on pulp wood to the United States, the amount of such export duty shall be added as an additional duty to the duties herein imposed upon wood pulp imported from such country."

I say that is an insult to Canada, for that is aimed at us. I read the other day the remarks of a Congressman in the United States who prefaced one of his statements by saying, "If we allow Canada to do so." What right have they to "allow" Canada to do this or that? We are friendly to our neighbors and they to us, but why should we not look after our own interest? My attention was drawn to this matter by a gentleman living in the United States and well acquainted with this business. He is a Canadian by birth and his feelings incline toward the flag under which he first lived. He told me that they were laughing at us over there.

Here is another object lesson: Japan imports 5,000,000 pounds of British paper and 8,500,000 of American paper—Canada is not mentioned. England imports $28,369,075 worth of paper, principally from the United States. Where does she get her wood pulp? From Canada. Yet Canada is not mentioned. It has been stated in some of these documents from the United States that the paper and pulp mills in the United States number 1,200. Now, I have verified every statement I make here. I am not making a speech—I do not make speeches. I am putting in facts and trying to draw to them the attention of this House. Instead of 1,200 paper and pulp mills, there were in the United States in 1905, the last year for which reliable figures are available, 761 pulp and paper mills. These had an average capital of $364,579. There are 41 paper mills in Wisconsin alone. Where do they get their pulp wood? Why, where do these 12 American vessels and 2 Norwegian vessels of which I have spoken carry their pulp wood?

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Now, what has Canada? Fifty-eight pulp mills, making 2,361 tons of paper in 1907, and 46 paper mills, making 966 tons per day. The retention of forests is needed to save the water supply, prevent droughts and freshets, and save water power for manufactures as well as for the pulp wood and timber. As to forestry, the question is not "can the trees be replaced as cut and how," but "who shall do it?" I think that is quite feasible. I have had correspondence with a gentleman in the State of Carolina; he is engaged in the foresty business and is a millionaire, and his opinion is that it is possible to make trees grow in the open field, but that this can be done much more easily where small trees are left after cutting down the large ones. We often read of statements made on the other side of the line as to the amount of pulp wood that is left and how many years it is going to last. I have this from a gentleman who has absolute knowledge in the matter: That very little spruce, if any, is left in New York, Pennsylvania, Massachusetts, Connecticut, Ohio, Michigan, Wisconsin, and Illinois, some in Maine and Wyoming. There is none left in Colorado and Dakota. Norway and Sweden are almost denuded. A mill in Herkimer, N. Y., took a ten years' contract to furnish an English company with paper, and they are taking their pulp from Canada by rail.

Now, there is the question of retaliation which has been mentioned. I wish to state this to the government and to the House in general, that I have no fear of retaliation. I have questioned gentlemen who have knowledge of the matter, and they say that there are other interests in the United States who would oppose retaliation, even if that were attempted; other interests who are opposed to the paper manufacturers are too strong to permit it. Now, here is a fact that may not be known to many in this House. In volume 1, page 736, of Storey on the Constitution of the United States, he gives these words from section 9, clause 5, of the Constitution:

"No tax or duty shall be laid on an article exported from any State."

Now, sir, with the permission of the House, I will proceed to read a few extracts taken from the pulp-wood number of the Globe of March 7. I have cut out only those that are pertinent to this question. Here is what Mr. Biggar says:

"A few years ago the United States believed, as we do now, that their supply of timber was inexhaustible. When theirs is done they have no place to turn but to Canada. We have the whip hand and control their supply."

Now, as to the question whether the farmer would be able to sell his pulp wood if an export duty was put on, I wish to say that his health, his comfort, and his interest would be greatly enhanced if such a duty were imposed; besides he would be able to sell his pulp wood in other directions. Here is an example of the benefits following the manufacture of paper in Canada, which we find in the Laurentides Paper Company at Grand-Mere, Quebec:

"The town of Grand-Mere is a striking example of what the paper industry would do for Canada. Five thousand well-to-do, contented people live there.

"Before the paper mill came to it Grand-Mere was a small struggling village with a few score of inhabitants; now it is a hustling, growing town, with over 5,000 inhabitants, and shows all the earmarks of prosperity.

"At Batiscan, one of the centers of the wood-pulp export business, there are some 300 people, yet at one time this village was a larger place than Grand-Mere. Batiscan is one of the chief shipping centers of the International Paper Company, and ships to the United States about as much pulp wood as is used by the Laurentide Paper Company. In one case all is exported and a struggling village of 300 barely holds its own. In the other case it is manufactured and a town of 5,000 people is prospering and growing.

"The Laurentide Paper Company have about 1,200 men on their pay roll, and have built this thriving town simply 'on paper.' This company take their supplies from the St. Maurice River, which enter one end of their modern plant as logs and come out at the other end as pure white paper of the finest texture.

"They consume 100,000 cords of pulp wood every year, and when manufactured this means $3,000,000. On the other hand, there are exported annually from Quebec 600,000 cords of pulp wood. This leaves in the country about $3,000,000. Thus there is as much money left in the country from 100,000 cords manufactured as from 600,000 cords exported.

"Or to make another comparison. A cord of pulp wood exported as such yields to Canada and all Canadian interests for cutting, handling, stumpage, transportation, etc., $6; the same cord converted into paper yields $38. Thus there are over six times as much in it for Canada by the conversion of her spruce wood into paper at home as is to be got by letting it be manufactured abroad.

"Further, the contention of the Laurentide Paper Company is that the manufacture of paper in Canada means the creation and assistance of many other industries. To the railroads there is a big gain. In one case their cars go in empty and carry out pulp

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wood. In the other case they carry in coal, marble, machinery, and mill supplies, and all the merchandise necessary to feed and clothe a large population. It would assist our coal companies, as every ton of paper manufactured requires half a ton of coal. Thus the Laurentide Paper Company alone consumes over 30,000 tons yearly. It would assist our banks by the circulation of money, would encourage skilled labor, and give a chance for our people to earn good wages. Around the mills in the United States large towns and cities have arisen, manned largely by people from the Province of Quebec, who were unable to find profitable employment at home."

Let me here suggest that there is no better plan of repatriating our Canadians from Quebec who have gone to the States than by the establishment of paper mills at home. I say this advisedly, because I contend, with the honorable member for South York, Mr. W. F. Maclean, that there is only one class of Canadians in this country. These Canadians from the Province of Quebec could be brought back to Canada easier by this method than by immigration methods. I am sure the honorable member for Wolfe, Mr. Tobin, will confirm this from his experience. Here is another statement by this gentlemna, Mr. Biggar:

"The subsequent progress of the pulp and paper industry is recorded in the Pulp and Paper Handbook of Canada in the various editions as follows:

Pulp mills.

Year.	Number of mills.	Total capacity in tons per 24 hours.
1888	34	154
1892	37	312
1899	39	1,245
1907	58	2,361

"The total capacity of the mills producing chemical pulp by the sulphite and soda processes in 1899 was about 50 tons per day and in 1907 about 550 tons per day, so that the increase in the last eight years has been almost wholly in mechanical or ground wood pulp.

Paper mills.

Year.	Number of mills.	Total capacity in tons per 24 hours.
1888	40	178
1892	38	209
1899	33	328
1907	46	966

"The era of manufacturing pulp from wood in Canada began in the decade of 1880–1890. The yearly capacity of its pulp mills at the present time is about 700,000 tons of pulp and 290,000 tons of paper. Pulp first figures in the trade and navigation returns of Canada in 1890, when the total export was valued at $168,180, of which $460 went to Great Britain, $147,098 to the United States, and $20,662 to other countries. In 1897 the total export was $741,959.

"If this be true, and certainly The Paper Mill can have no object in making matters appear worse than they are, the newspaper publishers of Canada and the newspaper readers as well, for in this their interests are identical, may well ask themselves a few questions.

"There are in the United States 70 mills engaged in the manufacture of white paper, the daily output of which fluctuates between 4,000 and 5,000 tons—say 4,500 daily. Should it come about that Canada will be called upon to supply the spruce for all this output, not less than 5,000 cords of wood would be required daily. On a basis of 4 cords to an acre, which, I believe, is considered a fair estimate, we would see in this country 1,800 acres of standing spruce skinned off every day in the year to keep the pulp and paper mills of the United States running. In every three hundred and sixty-five days—the Sunday paper is the greatest gourmand of them all—511,000 acres of Canadian spruce land will have been left bare.

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"Until within recent months the newspaper publishers of this continent were as indifferent to a prospective famine in their raw material as are the gristmillers of the country. Nor is this to be greatly wondered at, for from the lips of engineers and explorers, and even from the pages of the government reports, they for years heard of 'the boundless areas,' 'the inexhaustible supplies,' etc., of spruce wood and timber. Thus lulled to sleep, the publishers have given their attention to problems which they knew to be real and which were pressing them at closer range.

"But to-day the signs of a sudden awakening are visible in all quarters. The publishers of the large daily papers throughout the United States met in New York last October and made no effort to conceal the alarm with which they viewed the situation. They declared in no uncertain manner that they were face to face with a problem of the most vital nature, and passed resolutions calling upon President and Congress to adopt measures which only a couple of years ago would have been considered rampantly radical.

"That the situation in Canada is equally serious no one for a moment suggests, but that it is possible to become so in a comparatively short time, unless prudence is displayed at this critical juncture, few will deny.

"Canadians were hardly prepared to read in The Paper Mill, the recognized organ of the paper and pulp makers of the United States, such an astounding admission as the following, taken from a January, 1908, issue of that journal:

"The wood situation to-day is a very serious matter. There is not a mill in the United States manufacturing paper and pulp that is not to a very large extent depending on Canada for its wood, and there is no basis to work upon, for the reason that there is no established price for wood either in this country or in Canada, and owing to this fact there is no basis for the paper manufacturer to work upon to establish a price for the finished product.

"Now, when the mills in Wisconsin, planted in the midst of what was regarded as a perpetual supply, have had to import pulp wood to the extent of 70,000 cords during the past season, all the way from Quebec by rail, while some of the paper mills of Maine, the State of 'inexhaustible' spruce limits, are getting supplies of wood from New Brunswick and Quebec, the American famine in pulp wood can no longer be denied.

"The famine was inevitable, but like most other famines it was neither foreseen nor provided against by the average man concerned. In ten years after the introduction of the wood-pulp paper process the price of news print was brought down from an average of 9 cents a pound to 4 cents, and since then the improvements in machinery and the increased capacity of the mills have further reduced it, till it recently sold at 2 cents a pound. This cheapening has, in turn, made possible the enormous increase in the size and circulation of the modern daily newspaper—one of the marvels of the age, and as fearful in its power for evil as grand in its possibilities for good to the world. The increased demand for wood to maintain other industries, added to this remarkable development of the paper industry, explains the wood famine which is now giving the statesmen of the United States such concern, and explains why each year the United States is becoming more dependent on Canada for the raw material for its paper mills.

"During the year ending June, 1907, the United States imported pulp wood from Canada to the amount of 650,366 cords, or enough to manufacture, say, 520,000 tons of news paper, while its imports of ground pulp from Canada were 149,827 tons, valued at $3,230,272."

As the Globe has said in its special pulp-wood number, one of the greatest, perhaps the greatest, of the problems confronting Canada at the present time is the preservation of her forests. While there have been good laws passed regulating our tariffs, restricting our fisheries, controlling our mines, and exploiting our agricultural areas, the forest has been largely neglected.

Sir Wilfrid Laurier, speaking before the Canadian Forestry Association, said:

"We can calculate the number of years—and the number is not very great—when there will not be another tree of the original forest to be cut upon the limits of the Canadian lumber men. But trees have grown and trees ought to grow again.

"I should like to impress upon every Canadian farmer the necessity of covering with trees every rocky hill and the bank of every running stream. It is very easily done. He has only to scatter the seeds on the ground, fence it, and nature will do the rest."

It is evident that Sir Wilfrid Laurier at that time appreciated, and he must now more thoroughly appreciate, the fact that a wood famine in Canada is imminent unless proper precautions are taken.

Earl Grey, addressing the same convention, said:

"There are no more melancholy reflections than those suggested by the sight of a country once rich and equipped with all the majesty and panoply of power, which

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has become a waste and a stony desert through the reckless improvidence of its own people.

"It is the object of this convention to fix the attention of the people of the Dominion on the warning which these and other countries hold out to us as the practices we should carefully avoid if Canada is to realize the high destiny which awaits her, or which will be realized if this generation is gifted with sufficient foresight and self-control to husband the resources so abundantly lavished upon the Dominion by a bountiful Providence."

Mr. Gifford Pinchot, Chief of the Forest Service of the United States, is a renowned authority on forestry. He is worth millions of money, but owing to the great interest he takes in this subject gives his services to the Government of the United States for the small sum of $5,000 a year. Writing in the New York Outlook, Mr. Pinchot says:

"The most prosperous nation of to-day is the United States. Our unexampled wealth and well-being are directly due to the superb natural resources of our country, and to the use which has been made of them by our citizens, both in the present and in the past. We are prosperous because our forefathers bequeathed to us a land of marvelous resources still unexhausted. Shall we conserve those resources, and in our turn transmit them, still unexhausted, to our descendants? Till now we have allowed our forests to be depleted, our timber, lumber, and pulp wood to be exported, and to-day we have very little to show for our prodigal wastefulness.

"Bound up with the question of forest preservation are many national questions of vital importance. A survey of history shows that the decline of many of the great nations of the world can be traced to the destruction of their forests, Mesopotamia, among ancient nations and Spain among modern being examples. Again, it has been demonstrated that the planting of forests in a treeless country has increased and regulated the rainfall. Many of the floods from which countries suffer are due to the clearing of forests around the sources of rivers. When we consider the growing importance of water power as a generator of electricity we can readily see the importance of preserving our waterfalls and streams unimpaired. Particularly is this true of a large part of Ontario and Quebec, where there is no coal and where our manufacturers must depend upon water power.

"Assets so vast as these can not be left at the mercy of 'politics.' Let us have a forest commission independent of party politics to protect our forests, and thereby save our fish, game, and natural scenery.

"What will happen when the forests fail? In the first place the business of lumbering will disappear. It is now the fourth greatest industry in the United States. All forms of building industries will suffer with it, and the occupants of houses, offices, and stores must pay the added cost. Mining will become vastly more expensive; and with the rise in the cost of mining there must follow a corresponding rise in the price of coal, iron, and other minerals. The railways, which have as yet failed entirely to develop a satisfactory substitute for the wooden tie (and must, in the opinion of their best engineers, continue to fail), will be profoundly affected, and the cost of transportation will suffer a corresponding increase. Water power for lighting, manufacturing, and transportation, and the movement of freight and passengers by inland waterways, will be affected still more directly than the steam railways. The cultivation of the soil, with or without irrigation, will be hampered by the increased cost of agricultural tools, fencing, and the wood needed for other purposes about a farm. Irrigated agriculture will suffer most of all, for the destruction of the forests means the loss of the waters as surely as night follows the day. With the rise in the cost of producing food, the cost of food itself will rise. Commerce in general will necessarily be affected by the difficulties of the primary industries upon which it depends. In a word, when the forests fail the daily life of the average citizen will inevitably feel the pinch on every side. And the forests have already begun to fail, as the direct result of the suicidal policy of forest destruction which the people of the United States have allowed themselves to pursue.

"They stripped the mountain on each side of the river for miles of its timber. The river, in consequence, was not pouring down its accustomed volume of fresh water regularly. The fish left for new waters; with the fish left the fishermen, and with the fishermen a large revenue. You can't have fish without water; you can't have water, pure, sweet, and in full voulme, without its natural reservoir—the forest. And it has been conclusively demonstrated that forest-clad slopes do more than most other natural conditions to attract the active as well as the passive moisture of the atmosphere."

Mr. E. W. Stewart, late superintendent of forestry for Canada, said:

"No time should be lost in taking steps to reserve the whole timber area along the east slope of the Rocky Mountains in order to preserve the forest there for the conservation of the water for the great rivers that are supplied from this source. If this area is permitted to be denuded of its timber the North and South Saskatchewan, the

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Athabasca, the Peace, the Liard, and the many smaller streams that receive their supply from this timbered area will be raging torrents for a short period in the spring and almost dry in the hot summer months. The water level in the soil will decrease, and the husbandmen of the plains will begin to realize when it is too late why the summer droughts are increasing."

To a greater or lesser degree what is here predicted by Mr. Stewart has happened in the older portions of Ontario and Quebec.

Mr. MacLaren, who was interviewed by the Globe, takes the view that this is a national question, in which the future prosperity and well-being of Canada are bound up. He favors such a measure being taken as would result in preventing the depletion of our raw material for the benefit of foreign industries. He has no doubt that such a measure would quickly result in a great accession of industries to this country, and that with the splendid undeveloped water powers in Ontario and Quebec there would be no difficulties in the way of establishing such industries.

Mr. MacLaren was equally emphatic in regard to the necessity of a scientific policy of forest preservation. The firm are themselves pursuing such a policy on their own limits. As far as possible they are feeding their mills on the annual growth of the limits. The only remedy is for this government to institute a broad system for the practical training of men whose life duty will be the care of the forests.

The forestation or reforestation of areas unfit for agriculture.

The suppression of that class of "settler" who is only "a settler" until he gets all the wood cut off his location, and who then moves on to another well-timbered lot.

Obviously the initiative in many of these matters rests with the provinces, and some of them are attempting to deal with them on a broad scale. But the interests of all the provinces and of the federal government, which likewise controls great stretches of public domain, and of all the forces that work for the country's progress, are so intertwined as to make a united and common basis of action an imperative necessity.

The history of most nations indicates that very little can be expected in a forestry way from private individuals, even under pretty stringent state control, and it has been found more effective for the State or the community to undertake the work, particularly if it is done on a large scale.

B. E. Fernow, professor of forestry, writes as follows:

"*To the Editor of the Globe:*

"In responding to your request for an expression of my opinion as to the forestry situation, I can not open the discussion better than by the statement that 'the much vaunted virgin timber wealth of Canada would not suffice to supply the annual consumption of the United States for more than twelve years.'

"The mills of the gods grind slowly, but still more slowly does a democracy learn the lessons of the world and mend the follies of its happy-go-lucky unconcern of the future.

B. E. Fernow."

I wish to read a few more extracts on this subject as quoted in the Toronto Globe, March 7, 1908:

"Perhaps in the light of the late utterance of the President of the United States regarding the plight of the American paper manufacturers, Canadians will wake up to the realization that they have something worth keeping, not only in their pulp wood, but in other timber supplies. I should not have said 'worth keeping,' but worth taking care of and managing for continuity, i. e., applying forestry principles.

"Whether this new interest should take shape in the form of tariff legislation or had much better be fostered by regulating the use of crown timber lands conservatively is a matter for consideration.

"The President promised to recommend to Congress the removal of the duty, and The Fourth Estate, a well-informed weekly publication of New York, in reporting the interview says: 'He will give as his reasons the necessity for the preservation of the forests rather than the relief of the publishers of cheap newspapers and magazines. * * * One of his arguments will be the recent report of Gifford Pinchot, chief forester for the United States Government. who estimates that at the present rate of consumption the wood supply of the United States will have disappeared in twelve years.'

"According to a special report of the United States Census Bureau the consumption of domestic spruce wood used by the United States pulp mills increased 47 per cent in quantity and 122 per cent in price in the five years from 1900 to 1905, while the consumption of Canadian spruce wood by United States mills increased 102 per cent in quantity and 150 per cent in price in the same period. The average cost of wood used for mechanical and chemical pulp was more than doubled in the five years named for every variety of pulp wood except domestic poplar. Canadian poplar had increased

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176 per cent. If these percentages could be applied to the conditions in 1907 the increase would be still greater.

"To illustrate the nature of the crisis toward which the United States is swiftly tending, we may turn to the mills of New York State. This State has 108 mills, largely clustered in the northeastern counties, accessible to the great spruce forests of the Adirondack Mountains. Twenty years ago the mills of Watertown, the chief paper-making center, had supplies of pulp wood at their doors, and it was believed the timber would last forever. Now the source of home supply is 80 or 100 miles away, and an increasing proportion of mills have to get their wood from down the St. Lawrence in Quebec or by rail from that Province at a distance of 200 miles or more. The mills of this State have a yearly capacity of 987,000 cords of wood, and on the basis of a growth of 10 cords an acre they would strip nearly 100,000 acres a year, and if the lumber cut off this region (estimated in the census at 245,000,000 feet a year) is added, the whole spruce areas of the Adirondacks would be wiped out in seven years were these mills confined to their own State for raw material.

"The average man, however, is more accustomed to estimating values in dollars and cents than in acres and cords, so that possibly such a calculation may be found more interesting. Less than twenty years ago the paper on which newspapers are printed cost the publishers 8 cents per pound at the mill. That price fell steadily until the bottom was reached, about seven years ago, when at least one large contract was made in Canada at 1.87 cents per pound. With that contract the 'dollar daily' had its birth. For about six years the prices fluctuated between 1.87 and 2 cents, but about six months ago unmistakable signs began to appear that even '2-cent' paper would not likely be secured again for a few years, if ever. The price has gone steadily up in this country to 2.25, and in the United States to 2.60, with a strong possibility that 3 cents will be the prevailing figure there within a year.

"It is not pretended that a pulp wood scarcity alone has brought about this sudden and serious increase. Higher wages, low water, increased cost of chemicals, and a tendency to concerted action on the part of the manufacturers may each have contributed somewhat; but after making all possible allowance for these contingencies the fact must be admitted that what is almost a pulp famine in the United States and the increasing difficulty with which pulp wood is secured adjacent to railways and good streams in Canada are the principal causes in bringing about this remarkable increase.

"Ontario and Quebec are blessed with abundant powers commercially adaptable. No country in the world has such abundance of water powers capable of development for commercial purposes as Canada. Whether utilized for electrical energy to be transmitted far and wide to the benefit of the industries everywhere springing up or whether used in their respective localities for the manufacture of lumber and pulp wood in the wooded regions where many of them exist, forest conservation is vital to their continuance. The cutting of timber on such a large scale throughout the Ottawa Valley has already affected the flow of the magnificent Ottawa River, and more than one project is under consideration with a view to preventing further mischief.

"An idea of the vastness of these water powers in the eastern section of the country may be gathered from the statement that within a radius of 50 miles of the city of Ottawa, according to the statements and calculations of experts, there are water powers capable of producing over 900,000 horsepower. Some of these because of the rivers rising in that province, are under the control of the Province of Quebec. It is of interest to note here that the authorities of that province have shown a very commendable desire to take any action needed, such as the creation of forest reserves at the headwaters.

"The pulp mill has appeared, and by the higher value of its product it makes for the greater prosperity of the province. To quote the estimates of one authority: If 1,000 cubic feet of deals be cut, $7 will have been paid in wages, and the product is worth $15. The same amount made into pulp is worth $31.50, and the amount paid in wages is $12. The capital invested in the sawmill is $5, where in the pulp mill it is $41.

"In connection with this a strong agitation is now in progress in favor of a prohibitive export duty on pulp wood, for while a cord of pulp wood may be worth $2.50 to $7, made into low grades of paper it is worth $45, and if into the higher grades $50 to $100. It is therefore estimated that if the present export of pulp wood were manufactured into paper at an average value of $50 per cord $30,000,000 would be added to the national wealth of Canada. Considerations such as these are inducing lumbermen, legislators, and local boards of trade to favor the imposition of some such duty. The Maritime Board of Trade at its last session in St. John passed a strong resolution in favor of this export duty. The past few years has witnessed the purchase of large

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tracts of timber lands by syndicates of citizens of the United States. If a federal export duty can be imposed sufficient to compel the paper mills to move into Canada without seriously disturbing any other established industries, immense benefits will accrue to our business interests.

"Canada has the largest forest area in the world, and has also the greatest amount of water power in the world. When we consider the relation of forests to water power and of water power to electrical energy in a country largely deficient in coal, we can readily see that the conservation of these forests becomes one of the greatest problems of our national life. One phase of our problem is that of the pulp-wood industry. At present we export large quantities of pulp wood to the United States, where it is manufactured into paper. At a conservative estimate the same amount of wood would yield from twenty to twenty-five millions of dollars if manufactured into paper on this side.

"Thus, if Canada's pulp wood were all manufactured at home, industries would arise whose annual value would be millions of dollars, and at the same time the cutting of our great timber limits would be so regulated as to maintain present rate of reproduction and so conserve the value of our forests forever. Countries like Norway, Germany, and France have been able to restore their depleted forests, and thus derive from them a perpetual revenue.

"While the creation of a paper and pulp industry in Canada would mean much to Canada, yet it is only part of a greater scheme—that of national self-preservation.

"With our forests gone, our water powers are crippled, our agricultural lands spoiled by flood and drought, and our great national prosperity impaired.

"In Ontario's northland the water-power possibilities are almost beyond belief. Some of them are being made use of more or less, many others are as yet not available, others are within easy reach of the Canadian Pacific and Canadian Northern railways, and the extension of the Temiskaming and Northern Ontario Railway and the building of the National Transcontinental Railway will hasten for others the time when they will be harnessed for the use of man.

"Twelve of the largest rivers in Ontario flow toward James Bay, and nearly all of them pass through the great clay belt, where there are approximately 300,000,000 cords of pulp wood, from which in the future the Province must expect to reap no inconsiderable benefit. Of course this land can not all be held forever as pulp-wood land; its agricultural values are too great. But there is no doubt that some plan will be devised whereby areas of it will be so held; and that in the not distant future pulp and paper mills will flourish there, and will be fed for many long years from the raw material at hand.

"There are millions of horsepower undeveloped in our Province, said Mr. Welden, and in almost every instance these water powers are surrounded with an almost inexhaustible supply of spruce. With judicious cutting and the adoption of reforestation methods, it would be quite possible for any large pulp and paper concern in this way to settle for themselves the perennial worries about wood supply.

"Asked as to what he thought of the effect of the proposed prohibitive legislation on the export of pulp wood from Quebec, Mr. Welden stated that he did not think this would prove to be quite so grave a situation as it was thought to be. 'It may,' he said, 'for a while have the effect of increasing the cost of paper to the consumer, but I am thoroughly convinced that it will only be a short while when the American mills will adopt the practice of manufacturing their pulp right on the ground and save the heavy transportation and other charges incident to the present method of shipping rossed pulp wood from Quebec.

"In 1905 there was invested in Canadian paper making establishments $21,260,157, with 4,974 employees; a product value at $9,449,842, and wages of $2,208,526. In wood-pulp establishments $11,164,768 was invested, 2,456 people employed, $1,023,720 paid in salaries and wages, and material to the value of $3,793,131 was produced.

"In Germany a hundred years ago a real timber famine existed, for then wood was the only fuel, rivers the only means of transportation, and the wood along the rivers had been cut away, and the forest devastation, as with us, had wasted much. It was then that the modern forestry systems took their origin, having before that time been only indifferently and locally developed. It was then that the Governments instituted such strong organizations to administer the timber lands, and by foregoing present revenue and making present expenditure prepared the results which they are now reaping.

"The state forests have now, through a hundred years of patient work, been brought into a condition which compares favorably with the results from agricultural soils; they produce annual revenues of millions of dollars, not by cashing capital, but by using interest—the amount of annual growth, which the same area can produce forever.

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"PULP WOOD EXPORT DUTIES.

"As the existence of a protective tariff in the Dominion has unquestionably compelled many United States manufactories to erect branch establishments in this country it is a reasonable proposition that similar results would follow the imposition of an export duty on pulp wood. At the present moment the United States paper companies are consuming 4,000,000 cords of pulp wood yearly, about one-fifth being drawn from Canada free of import duty. This is of course due to the care taken to support the home industries and so enable them to compete on the most favorable terms in the paper markets of the world. While little United States paper enters Canada, considerable quantities are exported to Britain, South Africa, and Australia.

"The northern States that are conveniently situated depend largely on Canadian spruce wood, and any restriction on its export or increase in its cost would certainly entail a reconsideration by the manufacturers of their position at least as regards their foreign trade. Under the present Dingley tariff the import duties into the United States run from three-tenths of a cent on paper valued at 3 cents a pound to 15 per cent ad valorem on the paper valued at over 5 cents a pound. But the tariff also provides for heavy additional duty in the case of paper coming from a country that imposes export duties on pulp wood. It is doubtful therefore whether United States paper companies could supply any part of their home demand from Canada, but it would be even better were the needs of other world markets met by factories established in Canada."

The following article is from the Montreal Herald of August 28, 1907:

"PULP WOOD AND THE STATES.

"The Maritime Provinces Board of Trade, in proposing that the export of pulp wood be prohibited, is but voicing a demand that, in one form or another, is yearly being advanced in more insistent terms. Put briefly, the argument is that the consumption of pulp wood is increasing enormously in the States and Canada; that the chief source of supply is Canada; that the States, by keeping a high duty on pulp and paper, and admitting pulp wood free, is draining this country of raw material, while building up its own manufacturing industries; and that an export duty, or the prohibition of export, would force the Americans to come to Canada and make pulp or paper here.

"There can be no question that a change is coming over the temper of Canadians in regard to this subject. There has been a widespread disinclination to adopt what might be considered a narrow and liberal policy. There has been a doubt as to whether the destruction of the United States spruce supply was as complete as represented. There has been a fear of the effects of an export duty upon the settler, to whom the market of the States has certainly been a great advantage.

"In regard to all three of these matters of contention there has apparently been a steady change in public opinion. For one thing, the experience of Ontario in prohibiting the export of unsawn logs has been so satisfactory that it is not unnaturally taken as an illustration of what may be the results of federal legislation along similar lines.

"The result of this legislation is told in the great mills which contribute to the prosperity of almost every port on the Georgian Bay.

"Evidence has accumulated that the Americans have no great reserves of spruce, and men and papers interested in the paper trade now frankly confess that the States has to look to Canada for the bulk of its supplies of pulp wood. Canadian settlers, with pulp wood to sell are probably not as numerous as they were, as the lands in the older settlements have now been largely cleared of spruce. But even were this not the case, if it is a fact that the demand from the States would continue, in the shape of imports of the manufactured or partially manufactured product, the Canadian settler's market price would probably be maintained or suffer only a temporary setback.

"The demand for prohibition is based on the argument that an export duty would be met, under the United States law, by the automatic imposition of a countervailing duty on pulp, while there is no such instrument at hand in case the export be prohibited. Of course it is obvious that if the States must have our spruce, in one form or another, no duty will long be maintained that will make it impossible or difficult to buy the Canadian product. So an export duty would sooner or later have the same effect as a prohibiting measure.

"The subject is a large one, and if it becomes a factor in practical politics will call for the most exhaustive examination and most careful handling. The outstanding fact that will constitute the chief reason for parliamentary discussion is that a vast reservoir of natural wealth, peculiar to Canada, is being drained, at an ever-increasing rate,

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into foreign channels, leaving behind it but a fraction of its potentialities for the country's benefit. To this fact is added the other one, that the legislation of the foreign country to which this wealth is flowing is deliberately devised so as to make it impracticable for Canada to enjoy a greater share of this potential value. In adopting such a policy the United States has made it impossible for it to consider as unfriendly any Canadian legislation on the subject, however radical. If a foreign country will not, without compulsion, permit us to sell to it our pulp and paper, we are quite justified, in pursuance of a policy of development of our national wealth, in saying to that country, If you will not buy our pulp or paper, we will not sell you our pulp wood."

The Toronto Globe of September 20, 1907:

"NEWSPAPERS AND PULP WOOD.

"Special dispatch to the Globe of yesterday contained the information that the American Newspaper Publishers' Association has requested President Roosevelt and Congress to investigate an alleged combine on the part of the paper makers to limit the output of paper and to unduly enhance the price of news print. The present import duty on white paper for news print is $6 a ton, and there is also a duty on wood pulp; the association at its recent New York meeting unanimously requested the repeal of these duties, and appointed a large committee to prosecute the movement as vigorously as possible.

"The reason for this action is to be found in a serious scarcity of the paper on which newspapers are printed.

"It may be asked why the newspaper publishers do not recoup themselves for the increased cost of white paper by increasing the price of their journals. This is more easily said than done, but some publishers are doing so in the large cities of the United States. In a number of cases the 1-cent dailies have been put up to 2 cents, and many country weeklies have advanced their subscription prices. Some publishers are cutting down the size of their publications, others are reducing the headlines, and still others are using smaller type. All these remedies go but a little way to relieve the present distress, to say nothing of averting the impending danger. It is too late to do much in the way of conserving the supply of pulp wood in the United States, but there is still opportunity to do a great deal in the way of preventing a like situation from arising in Canada. What is urgently needed is a policy of conservation of spruce forests through judicious selection of the trees to be cut, prevention of destruction by fire, and allowing abundant opportunity for reproduction. Whatever the future may have in store in the shape of substitutes for wood pulp, there is nothing yet in sight to displace spruce wood, and in her abundant supply of that timber Canada has a source of wealth that is worthy of the most careful and intelligent treatment."

I have the statement of the manager of the Eddy works, in Hull, that, in his opinion nothing will be found to take the place of spruce for making paper. Here is what Professor Fernow says:

"In the United States to-day the forestry question is regarded as a critical one, the authoritative assertion having recently been made that the exhaustion of that country's supply of timber is in sight. Is Canada to wait until that can be said of her supply before any adequate action is taken? True, something has been and is being done now, but, in the opinion of the men best qualified to speak, these steps are not sufficient to guard Canada against experiencing the conditions that are now causing alarm in the United States. For the most part Canada's timber is being cut with prodigal vigor. A considerable quantity is manufactured in the country, but much more might easily be done here; while, in respect to pulp wood, rapidly increasing quantities are being exported to the United States to build up the pulp and paper making industries of that nation. There is no duty on this raw material; the United States gets it free of duty, handicaps the Canadian pulp and paper industries by putting a duty on their output going into the Republic, and tries to undersell them in the British market with pulp and paper made from Canadian wood. The figures cited are, however, sufficiently reliable to make it certain that the United States has already crossed the verge of a timber famine so severe that its blighting effects will be felt in every household in the land. The rise in the price of lumber which marks the opening of the present century is the beginning of a vastly greater and more rapid rise which is to come. We must necessarily begin to suffer from the scarcity of lumber long before our supplies are completely exhausted. It is well to remember that there is no foreign source from which we can draw cheap and abundant supplies of timber to meet a demand per capita so large as to be without parallel in the world, and that the suffering which will result from the progressive failure of our timber was but faintly foreshadowed by the recent temporary scarcity of coal.

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"The chief wealth of the northern forest region of Quebec is in its spruce, however, where it forms three-fifths of the coniferous forest available for commerce. If, as claimed, it is reasonable to allow 2½ cords of this wood suitable for the making of pulp to the acre, these northern forests should furnish no less than 406,874,470 cords of pulp wood. Enormous quantities of white spruce of a very large size are found in the southern Abitibi, capable of supplying large numbers of saw logs and much pulp wood. Birch and poplar, as well as balsam, are also very abundant in many parts of the northern forests of Quebec.

"The greatest variety and the richest quality of timber are to be found in the central region of the province, and especially in the new forest reserves of Ottawa and the St. Maurice. This region is situated between the St. Lawrence and the forty-eighth degree of north latitude, and is larger than the combined areas of Nova Scotia and New Brunswick. White, red, and banksian pine, white and black spruce, cedar, and balsam are the chief varieties of timber in Ontario. There are many fine water powers. On the Missanabie, Mettagami, and Abitibi rivers it has been roughly estimated that as much as 150,000 horsepower each could be developed. The Mississiga, the Onaping, the French, and the Montreal rivers all have great capabilities in the way of horsepower development. On the Vermillion, Spanish, Sturgeon, Rainy, and other rivers, while some powers have been developed, there are many others still undisturbed. For the most part these water powers are still vested in the Crown. The government has, therefore, a great inducement to offer pulp or paper manufacturers when it decides, as occasion arises from time to time, to lease pulp-wood areas, good water powers being a most important factor in the economic essentials of the industries mentioned.

"Quebec is no less fortunate in its possession of water powers, though it would appear that a very considerable number of these have passed from the control of the Crown. The tributaries to the St. Lawrence, as well as that great river itself, possess water powers some of which are already in commercial use and others that will be as the pulp and paper industries particularly call for their being called into use.

"It is significant that in the Province of Quebec the utmost importance is attached to the bearing of the forestry question upon the water flow. Mention has been made elsewhere of the emphasis laid upon this by the provincial forester, Mr. W. C. J. Hall."

Here is an advertisement in the Toronto World of October 18, 1907, inserted by the provincial government:

"TENDERS FOR PULP-WOOD CONCESSIONS.

"Tenders will be received by the undersigned up to and including the 15th of December next for the right to cut pulp wood on certain areas tributary to the Nepigon River, in the district of Thunder Bay and Rainy Lake, in the district of Rainy River, and make the same into paper. Tenderers should state the amount they are prepared to pay as bonus in addition to such dues as may from time to time be fixed for the right to operate a paper-making industry on the areas referred to. Separate tenders must be made for each area or territory, and the successful tenderers will be required to erect a mill or mills on each of the territories or in such other localities as may be approved by the government of Ontario.

"Parties tendering for the pulp-wood rights shall accompany their tenders with a marked check for 25 per cent of the amount tendered, payable to the treasurer of Ontario, and to be forfeited in the event of their failing to enter into agreements to carry out conditions, etc.

"With respect to the Rainy Lake pulp concession, tenderers will be required to make a tender for the right to cut pine, tamarack, and cedar on the territory offered. Parties making tender for these timbers to state the amount they are prepared to pay per thousand feet board measure as bonus in addition to crown dues of $2 per thousand feet board measure. A marked check for $5,000, payable to the treasurer of Ontario, must accompany the tender for pine timber, and to be forfeited in the event of their failing to enter into agreements to carry out conditions, etc.

"No timber shall be cut on either of the concessions of a less diameter than 9 inches, 2 feet from the ground.

"The successful tenderers to enter into agreements with the government for the erection of the mills, expenditure of money, etc.

"For full particulars as to the conditions, etc., application should be made to the undersigned.

"Hon. F. COCHRANE,
"*Minister of Lands, Forests, and Mines.*

"TORONTO, *October 16, 1907.*"

This is a very important measure, but it can be outwitted by a clever purchaser on the other side. He can send in a lot of stool pigeons to purchase the land. Even where

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the lumber man has to take off the timber in two years, the stool pigeons and pulp-wood settlers will take the land and pay the price, which will be put up by the corporation on the other side, and deplete that land of all the timber there is on it. By this means the Provinces can be outwitted and our forest wealth taken to the other side of the border.

With reference to the help we get in this matter, here is an item from the Toronto News:

"FIGHTING THE PAPER TRUST—LOCAL TYPOGRAPHICAL UNION ENTERS RESOLUTION OF PROTEST.

"At a meeting of the joint conference board of the allied printing trades, composed of delegates representing the International Typographical Union, International Printing Pressmen and Assistants' Union, International Stereotypers and Electrotypers' Union, International Photo-Engravers' Union, and the International Brotherhood of Bookbinders, held at Indianapolis, Ind., December 17, 1907, a resolution favoring the abolition of the duty on white paper, wood pulp, and the various materials used in the manufacture thereof was unanimously adopted, and also at a recent meeting of the Detroit Typographical Union, No. 18, the same measure was presented and adopted by a unanimous vote:

"'Whereas we, the workers employed in the various departments of newspaper and commercial printing offices throughout the United States, i. e., compositors, pressmen, stereotypers and electrotypers, photo-engravers, and bookbinders, to the number of more than 100,000, feel that any combination which produces an artificial scarcity of news-print paper and which unduly stimulates the price of that product is an oppression that affects alike the employee as well as the employer; and

"'Whereas the almost prohibitive and ruinous price of such paper has curtailed to an alarming extent the number of workers employed in the printing industry, and has further acted as a preventive to the printing trade artisans from securing higher compensation for their services, to which they are justly entitled: Therefore, be it

"'*Resolved*, That this joint conference board, in session at Indianapolis, Ind., December 17, 1907, submit a memorial to the President of the United States and the Congress, and appeal for the abolition of the duty on white paper, wood pulp, and the materials which are used in the manufacture thereof; and be it

"'*Resolved*, That all local unions affiliated with our international organizations are requested to indorse these resolutions and forward copies to their Representatives and United States Senators.'"

I would ask honorable gentlemen to note the significant bearing of that item, namely, that we have behind us a majority of the unions who are opposed to the corporations that control the paper and pulp mills in the United States.

From the Toronto News of February 15, 1907, I take this paragraph:

"Recently reference was made to the economically unwise action of this country in giving away its spruce pulp logs to be manufactured into paper in United States mills. Here is the lesson in a nutshell: Canada has the greatest supply of pulp wood in world; Great Britain is the greatest consumer of paper, and yet Canada has only a share (how much is not thought worth while giving in these figures) in about 12 or 15 per cent of Great Britain's importations. On the other hand, the United States, which is an exporter of paper practically only because Canada supplies it with raw material, is up among the first three or four nations which send paper into Britain. Canada depletes her most valuable forests and sells the product in the shape of pulp wood for $6 or $7 per cord. The United States saves her forests and sells our product in the shape of paper for, say, $30 per cord for good British gold. Are not Canadians what the man in the street would call 'dead easy' to let this go on when we could stop it in six months by prohibiting (as Ontario has done) the export of pulp wood from crown lands?"

In one respect that item is wrong. If properly investigated it will be found there are no pulp-wood forests in the United States.

"The Laurentide Paper Company have millions invested in their plant and limits, and it is to their own best interests to preserve their limits. Many of the American companies cut off their timber regardless of the future supply, and in this way waste immense quantities.

"Over 52,000 tons of roll news paper is made every year by this company, and as the Canadian consumption is only 27,000 tons yearly, it means that outside markets must be sought for much of the produce. The market of the United States is barred owing to the duty, yet Canada furnishes them with their raw material. When this raw material happens to be manufactured in Canada it is shut out of the United States. As we have to import much of our heavy machinery from the United States and pay duties, the Canadian manufacturer of paper is handicapped when he attempts to compete with American manufacturers in foreign markets. The Americans have also a

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PULP AND PAPER INVESTIGATION HEARINGS

TARIFF HEARINGS ON PULP AND PAPER

SELECT COMMITTEE OF HOUSE OF REPRESENTATIVES

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JAMES M. MILLER, Kansas
HENRY T. BANNON, Ohio
WILLIAM H. STAFFORD, Wisconsin
THETUS W. SIMS, Tennessee
WILLIAM H. RYAN, New York

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TARIFF HEARINGS ON PULP AND PAPER.

SELECT COMMITTEE ON
PULP AND PAPER INVESTIGATION,
February 8, 1909.

The CHAIRMAN. We here reprint for the record such portions of the tariff hearings before the Committee on Ways and Means as relate to the subjects that the Select Committee on Pulp and Paper Investigation has had under special consideration. This matter consists of testimony and briefs and letters submitted under the tariff schedule on pulp, papers, and books.

THE COMMITTEE ON WAYS AND MEANS,
Saturday, November 21, 1908.

The committee this day met, Hon. Sereno E. Payne in the chair.

The CHAIRMAN. The hearing this morning is on the paper schedule.

STATEMENT OF MR. F. C. OVERTON, 41 PARK ROW, NEW YORK.

Mr. Chairman and gentlemen of the committee, my object in appearing here is to get a clearer wording in section 463 in reference to paper stock of every description. The present law includes grasses, fibers, rags, cotton, jutes, linen, flax, hemp, and manila coming in various forms. We want the law to so read that it will designate the various things that are to go into the manufacture. It is all waste material. A part of this is old rags and domestic shoddy or wool which is only suitable to be used in the cheap paper—the roofing paper. And yet, having some small percentage of wool, it is liable to come under a duty.

The CHAIRMAN. The committee has had its attention given to that, and we will give it careful attention.

Mr. OVERTON. There is another section to which I want you to give attention, and that relates to gunny bags.

Mr. CLARK. Whom do you represent?

Mr. OVERTON. I represent the New York Paper Stock Dealers, which organization is composed of quite a number of mills.

Mr. CLARK. Are you a manufacturer or a dealer?

Mr. OVERTON. These people are dealers. They sell to the paper mills solely. I am arguing for the raw stock, and I want just what the law apparently gives them.

Mr. CLARK. What do you care, if you are not engaged in the manufacture of paper?

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Mr. OVERTON. I am presumed to bring in this class of goods free, and yet an inspector of the United States might say that it is subject to duty. If it is going to be subject to duty, I want to know it, because if it is liable to duty I am liable to lose money.

Mr. CLARK. Where do you get most of your stock?

Mr. OVERTON. From the Continent; also from England, France, and Germany.

Mr. CLARK. Do you have to pay any duty?

Mr. OVERTON. The larger part of the business we do is in waste.

Mr. CLARK. Are you simply handling waste?

Mr. OVERTON. Yes, sir.

Mr. CLARK. To whom do you sell—to the paper trust?

Mr. OVERTON. Well, to whom do you refer?

Mr. CLARK. The International Paper Company.

Mr. OVERTON. No; we do not sell anything to the paper trust.

Mr. CLARK. You have nothing in the world to do with the paper trust?

Mr. OVERTON. Nothing in the world.

(Thereupon, at 1 p. m., the committee took a recess until 2 p. m.)

(The following papers were submitted by Mr. Overton:)

IN THE MATTER OF TARIFF REVISION AFFECTING SCHEDULE "M," PAPER STOCK, BEFORE THE WAYS AND MEANS COMMITTEE, WASHINGTON, D. C., NOVEMBER 21, 1908.

The importers and paper mills handling paper stock are satisfied with what they believe to be the spirit or intention of the law as it now stands, but experience has demonstrated that owing to its wording unnecessary hardship and expense have been entailed both upon the importer and the Government and indirectly upon the paper mills.

The clause "fit *only* to be converted into paper" causes most of the trouble, and a few examples will illustrate the nature of the trouble with which importer and appraiser have constantly to contend.

Paper stock consists, almost without exception, of waste material of some character, whether paper, rags, cotton, linen, jute, hemp, flax, or manila, and may come in the form of new clippings from the fabrics made of the various fibers or old pieces of same, or may come in the form of threads, strings, twines, or ropes, or in the form of waste of various qualities, such as card waste, rove waste, washed flax waste, etc.

The quality is so varied that although by far the largest percentage goes into the manufacture of paper a certain small percentage may find its way into some other use as a raw material, or the appraiser may think that it could be put to some other use, and as the law specifies that the material must be "fit *only* to be converted into paper" he assesses duty at 10 per cent ad valorem under section 463, "waste not specially provided for in this act, 10 per cent ad valorem." It has frequently been the case that an appraiser at one port has passed goods free, while exactly the same grade at another port was assessed 10 per cent.

Contracts with paper mills using certain grades of flax-card waste and thread waste have been made with the clause, "duty, if any, to

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be paid by buyer," inserted, as it was impossible to tell what attitude the appraiser might take, and as an assessment of a 10 per cent duty would frequently more than offset the profit, and as duties of $20 per ton have been assessed, the importer was unwilling to take the risk. Flax waste should be distinctly defined so that the appraiser has no discretionary power to impose duty applicable to tow of flax or "waste not otherwise provided for."

A low grade of colored jute waste, known as "colored jute caddis," and sold for about $12 per ton to a mill making roofing paper, has been assessed at 10 per cent on the ground that the small sample brought to the appraiser led him to believe it might be used to pack journal boxes, although wholly unsuited for the purpose on account of dirt and grit.

Old shoddy, rags, and worn-out garments, or what is known in the paper-stock trade as "satinet garments," composed of a mixture of cotton and wool or shoddy, and used by manufacturers of roofing paper, have usually been admitted free, yet in one or two cases have been assessed at 10 cents per pound, although the grade was too low to be worked up into shoddy, and the stock could be used only to be converted into paper, and the domestic collection is sold regularly for that purpose, either packed separately or mixed indiscriminately with old cotton rags.

Old gunny bagging has recently been classified into three grades by the Board of Appraisers, as follows:

Assorted large pieces.
Unassorted, or original gunny bagging.
Scrap gunny, or small pieces, from which the large pieces have been assorted.

The first two grades, assorted large pieces and original gunny, have been assessed 10 per cent ad valorem under section 463, "waste not otherwise provided for;" and the last grade, scrap gunny, has been passed free under section 648, "rags not otherwise specially provided for in this act."

A few years ago gunny bagging always came in free as fit only to be converted into paper. The question of paying duty on same first came up when it was found that a very small portion was broken up, or shoddied, for the purpose of stuffing horse collars, cheap mattresses, etc.

Some time later it became the custom with certain packers to assort out the large pieces and ship them to America to be used as patches, tops, or sides, in rebaling cotton.

The Government then assessed duty at 10 per cent ad valorem under section 463 on all old gunny bagging, irrespective of whether it was assorted, original, or scrap, and this custom was adhered to for several years, although the paper mills were still using a large percentage of it, but the oakum manufacturers were also using some to be manufactured into oakum, thus paying duty on raw stock and manufacturing it into a finished product which is free of duty.

Old gunny bagging has also been used in this country as a raw product by a manufacturing concern making gunny bagging, the old stock being shoddied and used in connection with raw jute, which is also free.

All of these different rulings have been under the present tariff law or previous laws whose wording of the section pertaining to paper stock was, in effect, the same as the present law.

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Although the paper-stock importers cheerfully admit that the Board of Appraisers have given the cases which have come before them careful, intelligent, and impartial consideration, yet the very wording of the section has made it absolutely impossible for them to give uniform decision, not because the goods in question varied in character or quality, but because the law specifies that the material must be fit *only* to be converted into paper, and whenever an appraiser had evidence or believed that the material could be used for anything else than paper making (and this happens frequently) duty would be assessed.

If the Government sustained their claim, and they sometimes showed uses of which the importer had never heard, the importer would make a loss not figured on in the cost of the goods, and if the importer won he received a refund, half of which went to his attorney for handling the case. Such uncertainties necessarily curtail business and make it difficult to figure cost, owing to unknown quantity of duty.

We respectfully but strongly urge that the wording of section 632 be revised so that it is definite and unequivocal, and that, being raw stock, the question of whether or not it is dutiable be determined by the material itself rather than the use to which it is or may be put.

A possible exception to this principle might be made with reference to a definite grade, such as "old satinet garments," above mentioned, and which contain a small percentage of wool or shoddy, by stipulating in a separate section that it must be converted into paper.

Again referring to old gunny bagging, it is hoped that Congress may not feel that it is essential, for the purpose of protection, to assess duty on any of the three grades before mentioned and admit all free of duty. If, however, duty is to be charged on any of the grades of gunny, we respectfully suggest that the duty be made specific rather than ad valorem, as is the custom at present.

The reason for requesting a specific duty is that old gunny bagging frequently follows the market on jute butts, which are free, and when a short crop of jute butts causes manufacturers to supplement the supply with old gunny bagging a wider market and correspondingly wider range of prices is apt to occur, frequently increased by speculative interests in no way connected with the paper trade, and it is most difficult to determine the correct value for duty purposes, so that in addition to the duty, fines and penalties are imposed, owing to difference of opinion between appraiser and importer as to the market value at time of shipment. Original, unassorted gunny to-day is worth approximately $13 per ton, and within the past three years it has been as high as $45 per ton. Instances have occurred where importers have contracted for the purchase abroad of a quantity of old gunny bagging at a low price, and not wishing to speculate have simultaneously sold same in this country on a small profit, figuring duty at 10 per cent on the cost, with the result that a rapidly rising market and correspondingly higher valuations upon which duty must be paid have resulted not only in loss of profit but a substantial loss in addition, even though furnisher and consumer properly lived up to the terms of their contract. We do not think duty should be assessed on any gunny, because, in the first place, it all originates from American cotton bales shipped abroad, and has consequently either

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been manufactured in this country or else paid a duty of six-tenths cent per pound. Furthermore, it is used exclusively as a raw product for manufacture, and even the assorted sides for baling must be re-assorted, mended, sewed together, and put in rolls before being ready for the market, so that all the duty which is paid by the importer must eventually be paid by the manufacturer who uses the goods as raw material.

In place of section 632, which is as follows—

Paper stock, crude, of every description, including all grasses, fibers, rags (other than wool), waste, including jute waste, shavings, clippings, old paper, rope ends, waste rope, and waste bagging, including old gunny cloth and old gunny bags, fit only to be converted into paper—

We recommend the following:

Paper stock, crude, of every description, including all grasses, fibers, rags (other than wool), waste, including jute waste, flax waste, flax-thread waste, hemp waste, linen-thread waste, shavings, clippings, old paper, rope ends, waste rope, and waste bagging, including old second-hand gunny bagging, not advanced in manufacture, to be used as raw material, free.

This, in our opinion, would cover all grades of paper stock, excepting old satinet garments and rags containing a small percentage of wool or shoddy, and suitable only for paper making, and this should be provided for in a separate section, and to cover same we urge the following section:

Rags or old garments composed of a mixture of cotton and wool, or cotton and shoddy, or cotton and wool and shoddy, and suitable for, and to be used for, the manufacture of paper, and for no other purpose.

The object of this brief is solely to get the clearest possible wording of the section relating to paper stock in order to avoid conflicting rulings in the future, without changing what we believe to be the intent of the existing law.

Respectfully submitted.

NEW YORK PAPER STOCK DEALERS' ASSOCIATION,
By FRANK C. OVERTON, *41 Park Row, New York,*
A. SALOMON, *140 Nassau Street, New York,*
HENRY ATTERBURY, *38 Park Row, New York,*
Committee.

(A communication from the Philadelphia Paper Stock Dealers' Association is attached herewith, together with a few letters from paper mills, which indicate and illustrate their attitude relative to section 632 of the present law.)

BOSTON, *November 18, 1908.*

Messrs. CASTLE, GOTTHEIL & OVERTON,
New York, N. Y.

GENTLEMEN: In reply to your communication of yesterday I will say:

Owing to the indefiniteness of section 632 of the tariff act, we have for ten years been subjected to a series of annoyances which are a disgrace to any well-ordered government. There has been no uniform

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practice of custom-house officials in levying duties on paper stock. Ten years ago, after a certain grade of flax waste had been passed as free for a dozen years, there was a sudden hold up, and duties of $20 per ton were demanded on stock which only cost $25 per ton, delivered at one of our mills, and the authorities demanded this rate on six carloads which had been entered, examined, passed as free, and manufactured into board. We protested and refused to pay, but after five or six years the Government sued us and recovered the duty, and then we took the case before the General Appraisers and they decided that the stock was not dutiable and the duties were refunded; but it cost us $1,200 for expenses.

I can point to more than a score of cases where duties have been extorted from importers and refunded later after a loss of interest and legal expense had been incurred.

As "tow of flax" is dutiable at $20 per ton, there should be a definition of the distinction between tow of flax and flax waste.

The words "fit only to be converted into paper" are worse still, as every paper stock is fit for something else, if only for kindling fire or bedding horses. The law was doubtless intended to have all crude paper stock free, and it should be so expressed that if some one uses a few bales for some other purpose, it should not subject the whole class to duty.

While the present practice at Boston is more uniform than formerly, the difficulties I have mentioned still exist and should be remedied.

Yours, very truly,

NATIONAL FIBER BOARD COMPANY,
By STEPHEN MOORE, *Treasurer*.

NEW YORK, *November 20, 1908*.

Messrs. CASTLE, GOTTHEIL & OVERTON,
No. 41 Park Row, New York City.

GENTLEMEN: Referring to the hearing of the Ways and Means Committee on paper stock, we beg to advise you that in our mills we consume approximately 25,000 tons per year of rag stock, and find it necessary to secure a portion of this from a foreign market.

Referring to the tariff act under "Importations of rags," section 632, as the matter now stands there is a difference of opinion among appraisers as to whether old satinet garments, etc., should be dutiable at 10 cents a pound or free as paper stock. Their value is approximately the same as dark rags for roofing-paper use, and for all intents and purposes as rags covered by section 632, but if the assessment of same be entirely at the discretion of the appraiser, and a possible duty of 10 cents per pound be assessed, there is difficulty in getting importers to secure this stock for us.

We would urge that a clause be made applying to this grade of stock, stating that old satinet garments or rags composed of a mixture of cotton and shoddy suitable only for paper stock, and to be used only to be converted into paper, be admitted free of duty.

In view of the fact that it is necessary to supplement our stock by the purchase of foreign rags, we think this uncertainty as to the

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interpretation of the present tariff should be definitely settled, and we trust that you will exert every effort in helping secure the modification above referred to.

Yours, truly,

BARRETT MANUFACTURING COMPANY.
W. A. FORMAN,
Manager Manufacturing Department.

LATROBE, PA., *November 18, 1908.*

Messrs. CASTLE, GOTTHEIL & OVERTON,
New York.

GENTLEMEN: We understand you people are going before the Ways and Means Committee on the tariff question. Our views are simply this: In the first place, we do not think there are enough domestic rags gathered in the United States to supply the demand of the paper makers, and therefore it is necessary that we should go abroad for rags.

Now take, for instance, rags bought in the last two years and ten months. We used in 1906 12,513 tons, at an average cost at the mill of $19.83 per ton; about 13 per cent of this was foreign stock. In 1907 we used 12,988 tons, at a cost of $22.24 per ton; about 10 per cent of this was foreign stock. And in the last ten months of 1908 we have used 7,956 tons, at an average cost of $15.15 per ton; about 5 per cent of this was foreign stock.

I think it is perfectly absurd to think of paper makers paying 10 cents per pound for the wool these foreign rags contain, or $200 per ton. There ought to be some way for the paper makers to get all the rags they want free of duty. When you take it on an average the year around, the stock does not cost them a cent a pound.

Of course the Government must have some means of knowing these rags go into paper, and not into shoddy. Now, any reliable firm will be willing to give a bond that all the foreign rags they buy would be put into paper.

The object of the roofing mills of the country is to sell roofing paper as low as it is possible to manufacture it, in order to shut out competition of other materials for roofing.

We would like this committee to make a strong plea to the Ways and Means Committee that in taking this duty off the woolen rags suitable for making paper does not interfere in any way whatever with the growers of wool in this country; but when woolen rags are sold in this country to shoddy mills, then it does come in competition. Taking the duty off the woolen rags, as far as paper making is concerned, benefits all parties and gives the American people a cheaper roofing.

Yours, respectfully,

PETERS PAPER CO.,
JAMES PETERS, *President.*

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YORK, PA., *November 18, 1908.*

Messrs. CASTLE, GOTTHEIL & OVERTON,
New York, N. Y.
(Attention Mr. Frank C. Overton.)

GENTLEMEN: We have letter from Mr. W. A. Forman, of the Barrett Manufacturing Company, New York, that you expect to send a representative to Washington to meeting of Ways and Means Committee on Saturday, 21st instant, and we hope that you will use your best endeavors with the committee to admit foreign satinets without duty.

As manufacturers of roofing paper, we can use large quantities of this material if admitted without duty, but as the value of this stock is so low we would be unable to use it should any duty whatever be put on its importation.

Yours, very truly, YORK FELT AND PAPER COMPANY,
By W. D. BALM.

PHILADELPHIA, *November 18, 1908.*

Messrs. CASTLE, GOTTHEIL & OVERTON,
New York, N. Y.

GENTLEMEN: With reference to the hearing before the Ways and Means Committee on paper stock, would say we are manufacturers of roofing paper and consequently large consumers of foreign rags, approximately 8,000 to 10,000 tons per year. We understand that as the matter now stands, rags coming in under section 632, the question as to whether they are dutiable or not is discretionary with the appraisers, the difference of opinion of the appraisers making the importers very indifferent in regard to bringing the stock out.

We would suggest, in view of the above, that the rags containing a mixture of cotton and shoddy or wool, fit only for paper making, should be put on the free list absolutely.

Yours, very truly,

JOHN LANG PAPER CO.
E. H. MORRIS, *President.*

NEW YORK, *November 20, 1908.*

FRANK OVERTON, Esq.,
CASTLE, GOTTHEIL & OVERTON,
New York City.

DEAR SIR: It will interest you to know of the following case that we are experiencing with an import of flax waste at the port of Boston. We bought a little while ago a shipment of 15 tons flax waste from Europe, and shipped it to Boston with the intention of selling it to one of our paper mills which offered us 90 cents delivered, with 10 cents freight for this shipment. This mill makes box and leather board papers. Another mill offered us 95 cents for it. The stock costs us £4 per ton, equal to about 90 cents per 100 pounds, and, of course, there would have been no profit in this transaction. Last week we received notice from our custom-house brokers that the value

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of the entry of £4 per ton was advanced by the appraiser to £7 per ton, which is above the seizure point, and it was figured out to us that the final sum that we would have to pay, including the fines, would amount to about $1,200 on a shipment worth $300. We went to Boston to examine the stock and found that a good many bales contained a better grade of flax waste than our purchase sample and contrary to the stock that we expected to get. A good deal, however, in all the bales was only the lower grade, and the stock in the bales is mixed up in such a way that the expense for separating the various qualities would bring the price of the goods to a very high figure, which would be prohibitive of selling it for the ordinary uses which such flax waste is put to. The quality of the shipment being mixed up, it is only fit for making into paper, but the technicalities of the law say if there is a percentage of higher grade, the duty should be assessed on the higher value, but in a practical way this lot of stock could only be used for paper.

If there would be no 10 per cent duty on flax waste, which is only a necessary by-product of the raw material, and which latter is free of duty under the tariff law, these burdensome matters would be done away with, and as the revenue derived from these importations is a very small sum, and as it is not a protection for any domestic stock nor for the manufacturers, but only a burden on him and the consumer, it would be most desirable for everybody concerned in the trade to have this duty removed, as nobody can profit thereby, but only gain by such removal of the existing duty which is applied in certain cases.

Very truly, yours, SALOMON BROS. & Co.

PHILADELPHIA, *November 19, 1908.*

Mr. FRANK C. OVERTON,
Chairman Tariff Committee,
New York Paper Stock Dealers' Association,
New York, N. Y.

DEAR SIR: Replying to the communication of Mr. F. H. Chase, dated November 16, 1908, to President J. I. Lenhart, asking to use the name of our association in relation to the changes in the tariff law affecting the importation of paper stock, bagging, fibers, etc., I beg to say the matter was passed favorably upon at the meeting of our association held this evening, so therefore you are at liberty to use the name of this association.

We are pleased to offer your association our cooperation in this matter.

Yours, truly, FREDERICK H. MEYER,
Secretary.

STATEMENT OF MR. GEORGE SULLIVAN, OF PHILADELPHIA, PA.

Mr. Chairman: I have a short brief here which I will not read. I will state that on behalf of the book-paper part of the industry—that is, the book manufacturers of the industry—we do not ask for any increase of the tariff, but we request that the tariff remain as it is, and the various statistics pertaining to that industry you will

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find in this brief. Of course, the question of wages to our employees is, as in the rest of these industries, the most vital and important part, and we feel the present tariff on book paper of 15 per cent is not an excessive one, but it is certainly a just and fair tariff and should remain as it is for the benefit of our industry. We feel that we should not be picked out or selected as the one industry in the country in which the tariff would be such that it would affect us in any way, but that we should have the same protection as every other industry. Our people are American citizens—that is, as far as we can possibly tell—and the vast number of them are such that they require the same consideration as others. There is a comparative wage scale that you will find in this brief between one of the leading mills on the other side and one of the leading mills on this side, and the value of our production during the last year—that is, the year 1907—amounted to $48,000,000. As a small illustration of the equity of the duty, I have here a volume which I have figured out, to illustrate just what a smalll thing it amounts to to the consumer. This book I purchased here this morning in Washington, and the method of figuring out you will find on this fly leaf, which shows that the duty on the paper in this book amounts to less than half a cent a copy to the consumer.

Mr. GAINES. What is the book?

Mr. SULLIVAN. This is just an ordinary novel, called "The Extreme Test," by Mrs. Reynolds.

Mr. GAINES. What did it cost you to buy it?

Mr. SULLIVAN. It cost $1.18 at a bookstore here in Washington. Of course the figures here are ample, because we have weighed the cover, including it in the weight, and of course the part that interests us is the part inside.

Mr. RANDELL. I think the question was what it cost to bind it.

Mr. GAINES. No; I asked him what it cost to buy it.

Mr. RANDELL. I thought you said to bind it.

Mr. GAINES. No; to buy it. Did you buy it in Washington?

Mr. SULLIVAN. Yes, sir.

Mr. GAINES. What did it cost; do you remember?

Mr. SULLIVAN. A dollar and eighteen cents.

Mr. GAINES. What is the paper in it?

Mr. SULLIVAN. The paper is an average 4 cent a pound paper, less 3 per cent for 30 days, and the paper in this volume weighs a scant 15 ounces, including the cover, so that fifteen-sixteenths of this makes the cost of this 3.75 cents, or a trifle over 5 mills per copy.

Mr. GAINES. Assuming that the entire duty is added to the cost of the paper, how much would that increase the cost of that volume; how much would that be on the book?

Mr. SULLIVAN. Half a cent for this copy.

Mr. GAINES. Half a cent for a book costing a dollar and eighteen cents?

Mr. SULLIVAN. Yes, sir.

Mr. RANDELL. What did it cost to manufacture that book?

Mr. SULLIVAN. That I can not tell you, sir. I am a paper manufacturer and not a book manufacturer. Of course, you will have to ask some book manufacturer what it cost to manufacture. I am only talking about the paper.

Mr. RANDELL. What sort of binding is it?

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Mr. SULLIVAN. Just the ordinary binding that is on novels.

The CHAIRMAN. Do not spend too much time on these exhibits. You can not get them into the record.

Mr. RANDELL. How would you describe that binding?

Mr. SULLIVAN. It is just an ordinary novel binding.

Mr. RANDELL. Is it cloth or leather?

Mr. SULLIVAN. It is a cloth binding. Now, I have two other illustrations here which may possibly interest you. Here is a magazine. This magazine weighs 10 ounces, so that in the twelve months there would be 8¼ pounds used in the year's issue. The tariff on that amounts to one-fourth of a cent to the consumer per number.

Mr. UNDERWOOD. Are you talking about the tariff on the book or on the paper?

Mr. SULLIVAN. On the paper.

Mr. UNDERWOOD. You are not talking about the printing or the binding?

Mr. SULLIVAN. No, sir; I am speaking only of the paper that is in the book. Here is another illustration. This is a better magazine, which shows a half a cent a number per year to the consumer; so that, taking all those facts into consideration, we feel that our duty is not an excessive one.

Mr. CLARK. Now, while you got a very little off of each one, you got a great deal off of the total; is not that true?

Mr. SULLIVAN. Of course that is true; yes, sir. But at the same time we feel that our industry is entitled to the same protection as all other industries.

Mr. CLARK. Some of these industries have a protection of 200 or 300 per cent. Do you want that or not?

Mr. SULLIVAN. No, sir; we ask that it shall remain as it is.

Mr. CLARK. Would you rather have them cut down to yours or have yours raised up to theirs?

The CHAIRMAN. What is it that has a protection of 300 per cent?

Mr. CLARK. I have a list on my desk where for six months there were some of them that had 100 per cent.

Mr. DALZELL. You are coming down now.

Mr. CLARK. No; I can find them where they had 300 per cent.

Mr. GRIGGS. You represent the paper makers?

Mr. SULLIVAN. The paper part.

Mr. GRIGGS. The book-paper manufacturers?

Mr. SULLIVAN. Yes, sir.

Mr. GRIGGS. And you insist that you need this tariff which at present exists, and you do not want it increased or decreased.

Mr. SULLIVAN. No, sir; we respectfully ask that it remain as it is.

Mr. GRIGGS. Have you not had any combination among yourselves?

Mr. SULLIVAN. No, sir.

Mr. GRIGGS. Did you not meet about a year ago, or some time ago, at Atlantic City and elsewhere, and raise the price of all this paper about $10 a ton?

Mr. SULLIVAN. No, sir; we had no combination whatever.

Mr. GRIGGS. It went up $10 a ton, did it not?

Mr. SULLIVAN. No; I do not think it did.

Mr. GRIGGS. What was it, $9?

Mr. SULLIVAN. That depends on the grade. Of course the book papers you can buy as low as——

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Mr. GRIGGS. I refer to the average.

Mr. SULLIVAN. The highest I can recall, as far as our own price was concerned, I think the highest we got, was an increase of about $7.50 a ton.

Mr. GRIGGS. Is that the highest you got?

Mr. SULLIVAN. That is the highest.

Mr. GRIGGS. The highest increase you got?

Mr. SULLIVAN. Yes.

Mr. GRIGGS. Not the highest you made?

Mr. SULLIVAN. No, sir; because we make paper from 3½ cents a pound up to 6.

Mr. GRIGGS. I just wanted to understand where you got it. You said the highest increase you got was $7.50 a ton. Where did you get that?

Mr. SULLIVAN. Where?

Mr. GRIGGS. Yes; you said you got it somewhere. Where did you get it?

Mr. SULLIVAN. How do you mean, where did we get it?

Mr. GRIGGS. I asked you where this increase came from and you said there was no combination and no understanding and no agreement, and when I asked you what was the highest, you began to speculate on it in your mind, and you said the highest you got was $7.50.

Mr. SULLIVAN. Yes, sir.

Mr. GRIGGS. Out of the deal?

Mr. SULLIVAN. No, sir; no deal. We have no affiliation with any other concern.

Mr. GRIGGS. You have no general agreement?

Mr. SULLIVAN. No, sir.

Mr. GRIGGS. Did you all go up at the same time?

Mr. SULLIVAN. No, sir; we did not.

Mr. GRIGGS. How long did you wait after the others went up?

Mr. SULLIVAN. We were up before they were, or some of them.

Mr. GRIGGS. You went up first?

Mr. SULLIVAN. Yes, sir.

Mr. GRIGGS. The others followed you up?

Mr. SULLIVAN. I do not know whether they followed us or not. We increased the cost of our paper as the demand increased, and as the cost of the raw materials increased. We had to do it or quit business.

Mr. GRIGGS. And they all were in the same fix?

Mr. SULLIVAN. Yes, sir; I guess they were.

Mr. GRIGGS. And all understood it at the same time?

Mr. SULLIVAN. Yes; I can not say whether they understood it.

Mr. GRIGGS. And all went up. Now, did you not really have a meeting in Atlantic City?

Mr. SULLIVAN. Yes, sir; we had a meeting at Atlantic City, but it was rather a jollification at Atlantic City.

Mr. GRIGGS. That was after you got the price raised?

Mr. SULLIVAN. No, sir.

Mr. GRIGGS. Why the jollification?

Mr. SULLIVAN. There seems to have been a good deal of stress laid on the meeting at Atlantic City, and it is rather amusing from the fact that there was really nothing but a social time in Atlantic City.

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Mr. GRIGGS. What is that?

Mr. SULLIVAN. So far as I know, there was nothing but a social time in Atlantic City, although there seems to be a great deal of stress laid upon the meeting at Atlantic City.

Mr. GRIGGS. It was a meeting of the manufacturers of book paper at Atlantic City, was it not?

Mr. SULLIVAN. Yes.

Mr. GRIGGS. And they all with one accord, with no social ties, simply met in Atlantic City to have a jollification and a good time; is that true?

Mr. SULLIVAN. Yes.

Mr. GRIGGS. They simply wanted to get acquainted?

Mr. SULLIVAN. Yes, sir; that is right. They ought to have gotten acquainted. We did not know each other for a long time.

Mr. GRIGGS. How long was it after that jollification meeting before the price of paper went up?

Mr. SULLIVAN. That I could not tell you—as there was not any general rise in the price of paper.

Mr. GRIGGS. I understand. Your raise, I am talking about now.

Mr. SULLIVAN. That I could not tell you, whether it was before or after that. We raised from month to month as the cost of our material increased or we were in a position to do so. We had so much business we were in a position to ask for an increase.

Mr. GRIGGS. You represent really all of the book-paper manufacturers, do you not?

Mr. SULLIVAN. Only in presenting this brief.

Mr. GRIGGS. Well, I understand; I mean here. You represent all of them, and you really do not know when the price went up among the others.

Mr. SULLIVAN. I can not tell you positively now.

Mr. GRIGGS. But it went up soon after the jollification meeting you had in Atlantic City?

Mr. SULLIVAN. At the present time I can not tell you whether it was raised before or after that.

Mr. GRIGGS. Well, you want to amend your testimony on that part, then, because you said just now that paper did not go up until after that meeting.

Mr. SULLIVAN. No; I did not. I was speaking about ourselves. I said I could not tell you whether ours went up before or after. We were raising from month to month.

Mr. GRIGGS. But you said your price went up, and that it went up before the meeting at Atlantic City.

Mr. SULLIVAN. Yes.

Mr. GRIGGS. You did not intend to say that?

Mr. SULLIVAN. Yes, sir; it went up before; but I think it went up possibly four or five months afterwards.

Mr. BONYNGE. You did not make all the increase at one time?

Mr. SULLIVAN. No, sir; we did not. Our prices were raised 15 cents at a time.

Mr. FORDNEY. You ought to be entitled to a jollification once a year when some men have a jollification every day, ought you not?

Mr. SULLIVAN. That is true. We do not have many of them in our industry.

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Mr. GAINES. What is the difference between news paper and book paper?

Mr. SULLIVAN. Most of the difference between news paper and book paper is that one uses ground wood and the other uses soda pulp.

Mr. GAINES. Which do you use?

Mr. SULLIVAN. Soda pulp.

Mr. GAINES. Is that what you call sulphite?

Mr. SULLIVAN. No, sir; both grades of paper use sulphite, both news and book paper. Soda pulp is the soda process. Sulphite is the sulphite process.

Mr. BOUTELL. You represent the manufacturers of book paper?

Mr. SULLIVAN. Yes, sir.

Mr. BOUTELL. And not the jobbers?

Mr. SULLIVAN. Not the jobbers.

Mr. BOUTELL. How many manufacturers are there of this book paper?

Mr. SULLIVAN. There are 46.

Mr. BOUTELL. Where are they located, geographically?

Mr. SULLIVAN. They are located all over the country, from Maine to Wisconsin. There is a list of them in this brief.

Mr. BOUTELL. Are there any of them west of the Mississippi?

Mr. SULLIVAN. Yes, sir.

Mr. BOUTELL. How far west do they go?

Mr. SULLIVAN. There is one out at Everett, Wash.

Mr. BOUTELL. So they extend clear across the continent?

Mr. SULLIVAN. Yes, sir.

Mr. BOUTELL. To whom do they sell, to the jobbers or the publishers direct?

Mr. SULLIVAN. Each one of these concerns has a different method of doing business. Some sell to the jobbers and do not sell to the consumers direct, and some mills sell to the consumers direct.

Mr. BOUTELL. There are only two classes of purchasers, either jobbers or consumers?

Mr. SULLIVAN. Yes, sir.

Mr. BOUTELL. Has there been any identity of interest to any extent of any two or more of these 46 mills?

Mr. SULLIVAN. No, sir; not to my knowledge.

Mr. BOUTELL. Are these 46 mills all operated by corporations?

Mr. SULLIVAN. No, sir. There are some here that are not corporations.

Mr. BOUTELL. Some are individuals and some firms and some incorporated companies?

Mr. SULLIVAN. Yes, sir.

Mr. BOUTELL. And there is no community of ownership between any two of them?

Mr. SULLIVAN. No, sir.

Mr. BOUTELL. Has there ever been any agreement between any two or more of these manufacturers of book paper, or a combination of territory?

Mr. SULLIVAN. Not to my knowledge.

Mr. BOUTELL. Or an agreement as to prices?

Mr. SULLIVAN. Not to my knowledge.

Mr. BOUTELL. To the jobber or to the publisher?

Mr. SULLIVAN. No, sir.

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Mr. BOUTELL. What was the total output of these 46 factories for any one year? Take any one year you choose.

Mr. SULLIVAN. This brief says, upon that point: "Unfortunately, statistics covering the production of book paper and similar grades for the current calendar year are unavailable, the year of 1908 being still incomplete and having some fifty-odd working days (the months of November and December) still to hear from. But estimating the production for the year 1908 of all mills engaged in manufacturing book paper and similar grades at about 90 per cent of the normal productive capacity, we would have an estimated average daily production of about 2,100 tons."

Mr. BOUTELL. Two thousand one hundred tons per day would be the average?

Mr. SULLIVAN. Yes, sir.

Mr. BOUTELL. For any year?

Mr. SULLIVAN. Yes, sir. Of course in 1905, according to the Bureau of the Census—that was before we took any statistics ourselves—the paper manufactured was 434,500 tons, which is equal to a daily average of 1,448 tons, which is calculated on 300 actual working days to the year. That was in 1905.

Mr. BOUTELL. What is that total output?

Mr. SULLIVAN. Four hundred and thirty-four thousand five hundred tons.

Mr. BOUTELL. What was the import of the product during that same period?

Mr. SULLIVAN. That I can not tell you. I have not that. I will have to get that for you and let you have it if you wish.

Mr. BOUTELL. I do not know if there is any one factor more important and essential, when you are asking for a variation in the tariff, than the proportion between the domestic product and the imported product.

Mr. SULLIVAN. We are not asking for any variation.

The CHAIRMAN. I asked the Director of the Census some time ago to give us a complete statement under the various schedules of the amounts of the domestic products and the amount of the imports for the year 1905, following each other, covering all the schedules. That will go to the printer to-morrow morning and get here in a few days. I say that to show you where you can ultimately get this information. This gentleman does not seem to have it.

Mr. BOUTELL. Yes; but when we ultimately get that we will not have the gentleman here. I wanted to ask you a question, Mr. Sullivan, based on the comparison of the two.

Mr. SULLIVAN. I have not that.

Mr. BOUTELL. Of course you realize that the amount of the imported product shows the amount of competition there is with the domestic product. That is what I was trying to arrive at.

Mr. SULLIVAN. We did not know that you would ask that question, because we were not asking for an increase in duty.

Mr. BOUTELL. But you must have considered that we might contemplate a reduction in the duty.

Mr. SULLIVAN. Yes. Of course, in the discussion of such a thing as that, we ask that you make a reduction also in all the products we

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use in our manufacture, so as to enable us to exist. As you will see by this schedule, everything that goes into our product has a duty on it, which, of course, should be reduced in proportion. It does not make any difference so long as we have our duty of 15 per cent, but if the committee proposes to reduce our protection, we ask that they reduce also the duty on the things we have to use. It is absolutely impossible for us to exist unless you also make a reduction in proportion in the things that we use.

Mr. CLARK. How much do you export?

Mr. SULLIVAN. We export very little, and most of that goes from the other side of the continent to Japan.

Mr. CLARK. How long have you been in this business?

Mr. SULLIVAN. Twenty-five years.

Mr. CLARK. Have you ever had any connection with the paper trust?

Mr. SULLIVAN. Never heard of it.

Mr. CLARK. You never heard of the paper trust?

Mr. SULLIVAN. No, sir; except in the newspapers.

Mr. CLARK. You did not read President Roosevelt's message, then, did you?

Mr. SULLIVAN. Yes; I read that, too. I am a member of the American Pulp and Paper Association, but that is no paper trust.

Mr. CLARK. No; that is a pulp trust.

Mr. SULLIVAN. That is a social organization that up to the present time has done nothing but have one annual dinner every year.

Mr. CLARK. You do not talk any business at that dinner?

Mr. SULLIVAN. No, sir; we generally have some right good Congressman to come there and deliver a speech. [Laughter.]

Mr. CLARK. You get Congressmen to go?

Mr. SULLIVAN. Yes, sir; we do.

Mr. CLARK. Is there any connection between this book-paper business and the news-paper business?

Mr. SULLIVAN. No, sir.

Mr. CLARK. You do not make the same sort of paper?

Mr. SULLIVAN. No, sir.

Mr. GAINES. The so-called trust is the International Paper Company, is it not?

Mr. SULLIVAN. Indeed I do not know just what you call a trust. The International Paper Company is an organization, so far as my knowledge goes, that only makes about 40 per cent of the production of news paper.

Mr. GAINES. In the first place, have you any connection with the International Paper Company?

Mr. SULLIVAN. None whatever; no, sir.

Mr. GAINES. What proportion of the product that it deals in or manufactures is made by the International Paper Company, do you know?

Mr. SULLIVAN. They have their representatives here, and those gentlemen will be able to give you the accurate information. What I have is only hearsay.

Mr. GAINES. Very well, we will get it from them.

(Following is the brief submitted by Mr. Sullivan:)

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BOOK PAPERS AND SIMILAR GRADES.

Production.

From the figures given by the Bureau of Census in Bulletin 80 of the Department of Commerce and Labor, which are assumed to be correct, it would appear that the production of book papers in the year 1900 amounted to 282,093 tons. This was equivalent to an average daily production of 940 tons calculated on the basis of 300 actual working days to the year.

In 1905, according to the same authority, the amount of book papers manufactured was 434,500 tons, which is equal to an average daily product of 1,448 tons when calculated on the same daily basis as above, viz, 300 working days to the year. This increase in 1905 in the production of book papers is particularly impressive, representing, as it does, an increase of 504 tons per day, or an enlargement from a daily average of 940 tons in the year 1900 to a daily average of 1,448 tons in the year 1905. Hence the percentage of increase during this five-year period (from 1900 to 1905) is equal to about 54 per cent in the production of book papers alone.

The present estimated average daily productive capacity of all the mills in the United States engaged in the manufacture of book papers and similar grade is calculated to be about 2,328½ tons, or, say, approximately 2,330 tons. Attached hereto is a detailed statement containing the names and post-office addresses of all companies producing the grades of paper in question, each representing a distinct, separate, and independent enterprise, and from which it will be observed that there are at present 46 concerns engaged therein.

Names and post-office addresses of companies engaged in the manufacture of book paper and similar grades.

Company.	Post-office address.	Average daily product.
		Tons.
American Writing Paper Company	Holyoke, Mass	69
Amoskeag Paper Mills Company	Manchester, N. H	10
Antietam Paper Company	Hagerstown, Md	4
Arlington Paper Company	Salisbury Mills, N. Y	16
Bardeen Paper Company	Otsego, Mich	24
Bare Paper Company	Roaring Spring, Pa	27
Bergstrom Paper Company	Neenah, Wis	18½
Bryant Paper Company	Kalamazoo, Mich	100
Bulkley, Dunton & Co	Bancroft, Mass	5
Champion Coated Paper Company	Hamilton, Ohio	180
Claremont Paper Company	Claremont, N. H	15
Crocker, Burbank & Co	Fitchburg, Mass	120
Curtis & Bro	Newark, Del	13
Dill & Collins	Philadelphia, Pa	38
Elkhart Paper Mills Company	Elkhart, Ind	15
Everett Pulp and Paper Company	Everett, Wash	25
Fitchburg Paper Company	Fitchburg, Mass	40
French Paper Company	Niles, Mich	25½
Friend Paper Company	West Carrollton, Ohio	70
Frank Gilbert Paper Company	Waterford, N. Y	13
Glatfelter Co., P. H	Spring Forge, Pa	50
Hamilton & Sons, W. C	William Penn Post-Office, Pa	34
Hammermill Paper Company	Erie, Pa	50
Jessup & Moore Paper Co	Philadelphia, Pa	53½
Kalamazoo Paper Co	Kalamazoo, Mich	20
Kenmore Pulp and Paper Co	Philadelphia, Pa	35
Kimberly-Clark Co	Neenah, Wis	136
King Paper Co	Kalamazoo, Mich	29
Mead Pulp and Paper Co	Chillicothe, Ohio	25
Merrimac Paper Co	Lawrence, Mass	24

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Names and post-office addresses of companies engaged in the manufacture of book paper and similar grades—Continued.

Company.	Post-office address.	Average daily product.
		Tons.
Michigan Paper Co.	Plainwell, Mich.	20
Monadnock Paper Mills.	Bennington, N. H.	27½
Monarch Paper Co.	Kalamazoo, Mich.	21
Nashua River Paper Co.	East Pepperell, Mass.	60
New York and Pennsylvania Co.	41 Park Row, New York.	87
Nixon Paper Co.	Manayunk, Philadelphia, Pa.	30
Oxford Paper Co.	Rumford Falls, Me.	120
Patten Paper Co.	Appleton, Wis.	17
Poland Paper Co.	Mechanic Falls, Me.	31
Reading Paper Mills.	Philadelphia, Pa.	12
Ticonderoga Pulp and Paper Co.	41 Park Row, New York.	49
Tileston & Hollingsworth Co.	Boston, Mass.	35
Wanaque River Paper Co.	Wanaque, N. J.	19
Warren & Co., S. D.	Boston, Mass.	145
West Virginia Pulp and Paper Co.	309 Broadway, New York.	328½
Wheelwright Paper Co.	Boston, Mass.	42
Total average daily production.		2,328½

Unfortunately, statistics covering the production of book paper and similar grades for the current calendar year are unavailable, the year 1908 being still incomplete and having some fifty-odd working days (the months of November and December) still to hear from. But estimating the production for the year 1908 of all mills engaged in manufacturing book paper and similar grades at about 90 per cent of the normal productive capacity we would have an estimated average daily production of about 2,100 tons, this being an increase of 652 tons per day over and above the production for the year 1905, such increase amounting to about 45 per cent.

While the increase of 54 per cent in the production of 1905 over the year 1900 seems marvelous, the increase in the production for the shorter period (from 1905 to 1908), a growth estimated at about 45 per cent, is none the less striking.

Comparisons of the average daily production of book papers for the year 1900 and the estimated average daily production for the year 1908 show that the increase and growth in production amounted to approximately 123.4 per cent within the period constituting the last eight years.

The marvelous growth and progress manifested in this one particular branch of the paper-making industry during the eight-year period indicated proves, if anything can, that its wonderful development became possible by virtue of the benign influences of our protective tariff, from the effects of which it has materially benefited.

The great increase in production of book papers and similar grades is largely attributable to the protective-tariff system. It is mainly responsible for the erection of all the new book-paper mills which have been constructed during the past eight years, likewise for additions and enlargements to older plants for the purpose of increasing their capacities, thus providing abundant opportunity for employment to the American wage-earner at a wage scale considerably higher than obtains in any other country.

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A brief résumé of the rates of wages paid to employees in paper mills of this country, as compared with the rates of wages paid in paper mills of other countries, will undoubtedly interest your committee, and data of this character is hereto appended, together with the present tariff duties in force and covering the various materials and supplies used in the operation and conduct of paper and pulp mills in the United States.

Scotch mill as compared with Mechanicsville mills.

[Average of various companies in Scotland—Pay per two weeks (12 days).]

	Scotch mill.	Mechanicsville mill.
Beater men	$20.00	$46.08
First assistant	12.50	22.20
Second assistant	8.75	22.20
Machine men	24.00	56.16
First assistant	12.75	30.24
Second assistant	8.50	27.36
Grass boiler man	17.50	28 80
Assistant	10.00	21.00
Cuttermen	18.75	40.20
Assistant	7.50	19.20
Cutter boys	4.00	15.00
Head machinist	30.00	45.00
Good journeymen	15.00	36.00
Apprentices	6 00	34.20
Head firemen	17.50	42.00
First assistant	11.25	28.80
Head finisher	20.00	49.20
Finishing girls	8.00	15.00
Tyers up	10.00	.....
Outside labor	9.00	18.00
Supercalendar man	17.50	29.04
Helper	8.00	21.00
Steam engineers	20.00	33.00

Rates of wages paid per day of twelve hours in the United States as compared with other countries.

Department.	Occupation.	United States.	Austria.	Germany.	Sweden.	Norway.	England.
Wood room	Sawyer	$3.00	$0.75	$0.87	$0.90	$0.95	.....
	Barker	2.68	.75	.87	.90	.95	.....
	Splitter	2.68	.75	.87	.90	.95	.....
	Chipper	2.68	.75	.87	.....	.....	.....
Digesters	Head cook	4.50	1.25	1.50	1.40	1.50	.....
	Cook	3.66	.90	1.00	1.00	1.00	.....
	Cook helper	3.00	.70	.75	.70	.80	.....
Beaters	Beater man	2.85	.80	.90	.80	.90	$1.20
Paper machines	Machine tender	4.30	1.50	1.80	1.50	1.60	2.75
	Second hand	2.15	1.00	1.20	1.10	1.20	1.60
	Third hand	1.65	1.00	1.20	1.10	1.00	1.25
	Fourth hand	1.65	.80	.87	.80	.80	1.05
Repairs	Head millwright	4.66	1.10	1.25	1.20	1.20	2.00
	Millwright	3.60	.90	1.00	1.00	1.00	1.10
	Millwright helper	2.40	.....	.75	.75	.80	.90
	Carpenters	2.35	.90	1.00	.90	.90	1.25
	Mason	6.00	.90	1.00	.90	.90	1.25
	Painter	2.00	.90	.87	.90	.80	1.10
	Electrician	4.00	1.00	1.25	1.10	1.00	1.25
	Laborers	2.20	.60	.75	.75	.70	.90
	Teamsters	2.20	.60	.87	.85	.80	1.00

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Scale of wages paid at Duncan mills, Mechanicsville, N. Y., 1893-1908.

[Wages shown for 1893 are those paid in the month of May, which was prior to a general reduction of 10 per cent. Said reduction remained in effect until after May, 1898.]

PAPER MILL.

	1893.	1898.	1903.	1908.	Percentage of increase between lowest and present rates.
Foreman, night	$4.00	$3.75	$4.00	$8.24	120
Foreman, finishing room	3.00	2.70	3.75	4.19	55
Finishers	2.00	1.80	2.20	2.40	33⅓
Foreman, cutter room	1.75	1.80	2.60	3.65	109
Assistant foreman, cutter room	.....	1.50	1.85	2.00	33⅓
Crane men, cutter room	.....	.....	.....	2.00	.....
Helpers, cutter room	1.50	1.35	1.40	1.60	18
Broke men	.....	1.25	1.30	1.50	20
Cutter girls	1.00	.90	1.10	1.25	40
Foreman, calender room	.....	2.00	2.40	4.44	122
Assistant foreman, calendar room	.....	.....	.....	2.75	.....
Men (66 calenders)	.....	.....	2.15	2.30	7
Men (52 calenders)	.....	.....	2.15	2.25	4
Men (44 calenders)	1.75	1.57	2.15	2.20	40
Helpers, calenders	1.50	1.35	1.68	1.75	30
Rewinder runners	.....	.....	2.15	1.75	—23
Rewinder helpers	.....	.....	1.68	1.60	— 5
Foreman, 1 and 2 machine room	.....	.....	.....	7.16	.....
Foreman, 3 and 4 machine room	.....	4.00	5.00	7.16	79
Foreman, 5 and 6 machine room	.....	.....	.....	7.16	.....
Machine tenders	3.00	3.38	3.80	4.75	58
Back tenders and oilers	1.50	1.69	1.92	2.38	58
Wipers (days only)	.....	.....	1.40	1.60	14
Beater engineers	2.50	2.93	3.05	4.00	60
Beater helpers	1.50	1.35	1.75	1.85	37
Beater wipers	.....	.....	1.40	1.60	14
Foreman, clay room	.....	.....	.....	2.00	.....
Helpers, clay room	.....	.....	1.75	1.85	5
Broke mixing machine	.....	.....	.....	1.75	.....
Engineers on steam engines	.....	2.00	2.66	2.75	37½
Motormen	.....	.....	1.90	2.00	5
Taking care of pumps	.....	.....	1.40	2.00	43
Belt repairer (whole mill)	1.50	1.35	1.60	2.00	48
Belt repairer's helper (whole mill)	.....	.....	1.60	1.85	16
Filter men	1.50	1.35	1.72	1.85	37
Watchman	1.50	1.35	1.60	1.75	30
Laborers	1.25	1.12	1.40	1.60	43
Mechanics	2.50	2.25	2.60	3.00	33⅓
Mechanics' helpers	1.50	1.35	1.50	1.75	30

SULPHITE MILL.

Foreman, day	$3.00	$3.84	$4.83	$5.25	75
Foreman, night	.....	3.00	3.50	3.85	28
Wet machine tenders	.....	1.35	1.63	1.85	37
Screening machine tenders	.....	1.25	1.40	1.65	32
Bleachers	1.75	1.57	1.85	2.10	34
Bleacher helpers	1.25	1.25	1.63	.....	30
Bleach mixers	.....	.....	1.80	1.80	.....
Bleach mixer helpers	.....	1.24	1.40	.....	13
Digester cooks	2.50	2.75	2.85	2.90	16
First digester cook helpers	1.50	1.50	1.60	1.85	23
Second digester cook helpers	.....	1.35	1.45	1.70	26
Acid makers	2.00	2.00	2.10	2.75	37½
Acid maker helpers	1.37	1.35	1.45	1.75	30
Screen men	1.25	1.35	1.69	1.75	40
Screen men helpers	.....	1.25	1.63	1.65	32
Blow pitmen	1.25	1.25	1.63	1.65	32
Foreman, wood room	1.50	1.70	1.85	2.25	50
Helpers, wood room	1.25	1.12	1.40	1.65	47
Lead burner	3.50	3.15	3.75	4.00	27
Lead-burner helper	.....	1.25	1.40	1.75	40
Mechanics	2.50	2.25	2.60	3.00	33⅓
Mechanic helpers	1.50	1.35	1.40	1.75	30
Watchman	1.50	1.35	1.60	1.75	30
Laborers	1.25	1.12	1.40	1.65	47

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Scale of wages paid at Duncan mills, Mechanicsville, N. Y., 1893–1908—Continued.

SODA MILL.

	1893.	1898.	1903.	1908.	Percentage of increase between lowest and present rates.
Foreman, day	$4.80	$4.33	$5.00	$6.40	43
Assistant foreman, day	2.00	2.25	2.35	4.06	103
Foreman, night	1.87	2.00	2.25	2.40	28
Machine tenders	2.25	2.02	2.35	2.75	36
First machine back tenders	1.75	1.45	1.60	1.65	14
Second machine back tenders	.....	1.25	1.45	1.60	28
Bleachers	1.75	1.57	2.16	2.10	34
Bleacher helpers	1.25	1.12	1.63	.....	45
Screen men	1.37	1.24	1.63	1.65	33
Foreman, wood room	1.37	1.12	1.85	2.25	100
Helpers, wood room	1.25	1.12	1.45	1.65	47
Foreman, pit room	1.50	1.35	2.04	2.00	48
Helpers, pit room	1.25	1.12	1.40	1.65	47
Digester cooks	2.50	2.25	2.62	2.75	22
First helpers	1.37	1.24	1.69	1.70	37
Second helpers	1.37	1.24	1.45	1.65	33
Foreman, liquor room	2.00	1.80	2.10	2.33	29
Helpers, liquor room	1.37	1.24	1.63	1.65	33
Foreman, leach liquor makers	1.50	1.35	1.87	2.10	56
First helpers, leach liquor makers	1.50	1.35	1.63	1.85	37
Second helpers, leach liquor makers	1.25	1.12	1.40	1.70	52
Foreman, rotaries	2.00	1.80	2.10	2.30	28
Helpers, rotaries	1.75	1.57	1.85	2.05	30
Do	1.50	1.35	1.60	1.65	22
Evaporator men	1.75	1.57	2.16	2.25	43
Men unloading lime and soda ash	1.25	1.12	1.40	1.65	47
Men handling soda pulp	.....	.....	.....	1.65	.....
Mechanics	2.50	2.25	2.60	3.00	33⅓
Mechanics' helpers	1.50	1.35	1.40	1.75	30
Watchman	1.50	1.35	1.60	1.75	30
Laborers	1.25	1.12	1.40	1.60	43

BOILER HOUSE.

Foreman	$2.40	$2.50	$3.25	$3.50	46
Water tender	.....	1.75	2.16	2.40	37
Fireman	1.50	1.35	2.00	2.40	80
Coal and ash handlers	1.25	1.12	1.65	1.75	56

MACHINE SHOP.

Foreman of mechanics	$5.00	$5.00	$6.00	$7.84	57
Shop foreman	3.00	2.50	2.75	3.75	50
Mechanics and millwrights	2.50	2.25	2.60	3.00	33⅓
Do	.....	.....	2.35	2.60	10
Do	.....	.....	2.25	2.35	4
Do	.....	.....	2.10	2.25	7
Mechanics' helpers	1.50	1.35	1.50	1.70	26
Foreman of pipers	.....	.....	2.50	3.75	50
Pipers	2.25	2.02	2.35	3.00	48
Do	2.25	2.02	2.35	2.50	24
Do	1.50	1.35	1.45	2.00	48
Blacksmiths	2.75	2.47	2.85	3.50	42
Blacksmiths' helpers	1.25	1.25	1.50	.....	20
Masons	3.00	2.25	3.75	4.50	100
Do	.....	.....	3.50	4.25	21
Masons' helpers	1.50	1.35	1.55	1.75	30
Storeroom	1.25	1.50	1.70	2.33	86
Storeroom helper	.....	1.35	1.60	1.75	30
Painters	.....	.....	.....	2.00	.....
Painters' helpers	.....	.....	.....	1.70	.....
Foreman electrician	.....	.....	6.00	8.42	40
Electrician	.....	1.80	2.29	3.08	71
Do	.....	1.80	2.00	2.50	39
Do	.....	.....	2.00	2.00	.....
Labor	1.25	1.12	1.40	1.60	43

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Scale of wages paid at Duncan mills, Mechanicsville, N. Y., 1893–1908—Continued.

YARD.

	1893.	1898.	1903.	1908.	Percentage of increase between lowest and present rates.
Foreman	$2.25	$2.25	$2.75	$3.92	74
Assistant foreman	1.37	1.75	1.75	2.10	53
Do	1.37	1.35	1.65	1.75	30
Teamsters	1.25	1.25	1.50	1.75	40
Barn man	1.25	1.25	1.50	1.60	28
Wood handlers	1.25	1.12	1.40	1.60	43
Yard helpers	1.25	1.25	1.45	1.65	32
Men on clay platform	1.25	1.12	1.45	1.75	56

Comparative wages of Tyrone (Pa.) mill.

	1893.	1898.	1903.	1908. Wages.	1908. Average daily bonus for year 1907.	1908. Total daily wage and bonus.
Night foreman paper mill	$3.50	$3.50	$3.75	$4.00	$0.49	$4.49
Finishers:						
Boss and shipper	[a] 100.00	3.00	3.25	3.25	.....	.....
Assistant shipper, etc	.....	.....	.....	3.00	.....	.....
Checker, etc	.....	.....	.....	2.00	.....	.....
Trimmers	1.75	1.75	1.90	2.15	.....	.....
Do	.....	.....	.....	2.05	.....	.....
Do	.....	.....	.....	1.90	.....	.....
Finishers	1.50	1.60	1.75	2.00	.....	.....
Counters, girls	.75	.90	1.00	1.10	.....	.....
Do	1.00	1.00	1.10	1.20	.....	.....
Do	1.10	1.10				
Cases and frames:						
Frame maker	[b]	[b]	[b]	1.65	.....	.....
Do	[b]	[b]	[b]	1.90	.....	.....
Cutters:						
Cutter girl, machine, first year	.65	.65	.75	.85	.....	.....
Cutter girl, machine, second year	.75	.75	.85	.95	.....	.....
Cutter girl, roll	.75	.75	1.00	1.10	.....	.....
Do	.90	.90				
Cutter boss	2.25	2.00	2.10	3.00	.32	3.32
Cutter boss assistant	.....	.....	.....	1.90	.....	.....
Cutter boss helper	1.25	1.25	1.45	1.65	.....	.....
Super calendars:						
Runner	1.75	1.60	1.65	1.80	.....	.....
Helper	1.25	1.25	1.40	1.65	.....	.....
Do	1.50	1.50				
Machine room:						
Machine tender	3.00	3.00	3.25	3.50	.32	3.82
Do	2.75	2.75	3.00	3.25	.32	3.57
Back tender	1.35	1.35	1.50	1.90	.16	2.06
Back tender helper	1.25	1.25	1.35	1.50	.....	.....
Winder boys	.....	.....	.85	1.10	.....	.....
Beater room:						
Boss beater man	1.75 2.00 2.25 2.75	2.75	3.00	3.25	.32	3.57
Helper	1.30	1.35	1.50	1.65 1.90	.16	1.81 2.06
Clay mixer	.....	1.50	1.60	1.65	.....	.....
Size, etc	1.35	1.50	1.60	1.90	.....	.....
Engineers and firemen:						
Chief engineer	[a] 100.00	[a] 100.00	[a] 125.00	[a] 135.00	[a] 8.00	[a] 143.00
Engineers	1.75	1.75	2.00	2.20	.....	.....
Firemen	1.60 1.70 1.75	1.75	2.00 2.10	2.20 2.45	.....	.....
Ash wheelers, etc	1.35	1.25 1.50	1.45	1.65	.....	.....

[a] Per month. [b] During 1893, 1898, and 1903 frames were made by contract.

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Comparative wages of Tyrone (Pa.) mill—Continued.

	1893.	1898.	1903.	1908.		
				Wages.	Average daily bonus for year 1907.	Total daily wage and bonus.
Mechanical department:						
Boss	$3.25	[a] $110.00	[a] $125.00	[a] $135.00	[a] $8.00	[a] $143.00
Mechanics	1.50	1.50	1.60	1.75		
Do	1.75	1.75	1.90			
Do	1.85		2.00	2.20		
Do	2.00	2.00	2.20	2.40		
Do	2.25	2.25	2.50	2.70		
Do	2.50	2.50	2.75	2.95		
Oilers		1.75	1.60 / 1.90	1.90 / 2.05		
Outside labor:						
Boss	1.75	1.75	2.00	2.50		
Common	1.35	1.25 / 1.35	1.45	1.65		
Paper loader	1.35	1.35 / 1.50	1.45 / 1.60	1.80		
Night watchman	1.35	1.50	1.75	1.90		
Teamsters	1.35	1.35	1.50	1.75		
Do	1.50	1.50	1.60	1.90		
Do	1.75	1.75	1.90	2.05		
Bleach and wet machines:						
Bleach mixers			1.60	1.90		
Wet machines and screens	1.35	1.35	1.45	1.75		
Bleachers, etc	1.75	1.75	2.20	2.35		
Bleachers' helpers	1.60	1.60	1.75	1.90		
Digesters, dumping and alkali:						
Digesters	1.70	1.70	1.85	2.15		
Digesters' helpers	1.50	1.50	1.60	1.75		
Pan room	1.60	1.60	1.75	1.90		
Pan-room helpers	1.35	1.35	1.45	1.65		
Alkali	1.70	1.70	1.85	2.00	.12	2.12
Alkali helper		1.50	1.60	1.75	.06	1.81
Evaporators, rotaries, and leachers:						
Assistant to pulp superintendent			1.75	2.25	.12	2.37
Evaporators	1.60	1.60	1.75	2.00		
Rotary	1.75	1.75	1.85	2.15		
Rotary helper			1.50	1.75		
Leacher	1.70	1.70	1.85	2.00		
Leacher helper	1.50					
Chipper:						
Chipper	1.50	1.50	1.60	1.75		
Helper	1.35	1.35	1.50	1.65		

[a] Per month.

Comparison of wages paid at pulp mill at Luke, Md.

	May, 1891.	January, 1894.	May, 1899.	May, 1904.	May, 1907.
Common laborer	$1.25	$1.15	$1.20	$1.35	$1.45
Tour workers	1.333	1.20	1.30	1.40	1.50
Machine room foreman (J. Ryan)	3.00	2.70	3.00	4.00	5.72
Cookers	2.50	2.25	2.25	2.35	3.46
Boss pipe fitter	2.25	2.25	2.25	3.10	4.51
Chief millwright	2.50	2.25	2.375	3.10	4.46
Assistants to millwrights	2.00	2.00	2.00	$2.25–2.50	$2.25–2.50
Chief engineer	3.50	3.65	3.40	3.98	5.51
Engineers	1.75	1.75	1.75	2.00	2.10
Firemen	1.50	$1.40–1.50	$1.40–1.60	1.50–1.70	2.00–2.25

Employees working regularly for more than one year now receive 5 per cent bonus, except foremen. This additional 5 per cent has not been figured in the above statement.—West Virginia Pulp and Paper Company.

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Comparison of daily wages paid at paper mills at Luke, Md.

	May, 1893.	May, 1899.	May, 1904.	May, 1907.
Boss finisher	$2.50	$2.666	$3.55	$3.65
Finishing-room girls	.75	.75	.80	.95
Calender-room boss (T. Gormley)	2.50	2.75	3.46	3.46
Cutter girls	.75	.666	.70	.80
Machine tenders	3.00	2.75	4.15	4.76
Beater men	2.50	2.50	3.10	3.54
Back tenders	1.50	1.60	1.99	2.30
Outside labor	1.25	1.25	1.35	1.45
Boss millwright	2.50	2.50	2.90	3.10
Boss machinist	2.50	2.50	2.90	3.10
Helpers on calenders	[a] 1.15	1.25	1.40	1.50

[a] Mostly.

Machine tenders, beater men, and back tenders are now paid double time for working on Saturday nights, and due allowance has been made for this (as well as for bonuses) in the figures for May, 1907. Wages at present time are same as May, 1907.—West Virginia Pulp and Paper Company.

Have not considered the 5 per cent bonus paid employees who remain one year or longer in the May, 1907, column.

Comparison of wages paid at pulp mill at Davis, W. Va.

	July, 1898.	July, 1903.	September, 1907.
Chief engineer, per month	$75.00	$90.00	$185.60
Assistant superintendent (H. Male), do	[a] 2.00	80.00	175.60
Machine-room foreman (Martin), per day	.....	2.25	4.93
Machine tenders, do	1.75	2.00	2.57
Chip-house foreman (Shoemaker), do	1.60	2.00	3.52
Cooker (digester house), do	2.00	2.00	3.52
Acid maker, do	2.00	2.25	2.34
Firemen, do	1.60	1.75	[b] 2.00
Coal wheelers, do	1.333	$1.40–1.50	None.
Common labor, do	1.15	1.35–1.40	$1.35–1.50
Wood peelers, per cord	.85	1.00	1.10

[a] Per day. [b] Gas.

West Virginia Pulp and Paper Company.

Comparative labor figures—Paper mill (per day).

	June, 1900.	April, 1903.	April, 1908.
Finishers	$1.76	$1.78	$2.17
Counters (girls)	.62	.76	.90
Cutters (men)	1.51	1.98	2.31
Cutters (girls)	.59	.67	.84
Cases and frames	1.36	1.35	1.60
Boss machine tender	4.26	9.11	6.82–7.28
Machine tender	3.00	3.73	4.21–4.51
Back tenders	1.50	1.79	2.24–2.41
Third hands and reels	1.14	1.26	1.43
Beater men	2.62	3.73	4.24–4.44
Helpers on beaters	1.34	1.40	1.74
Outside labor	1.25	1.36	1.53
Mechanics	2.50	2.67	2.69
Supers (runners)	[a] 1.75	1.76	2.28
Supers (helpers)	[a] 1.25	1.25	1.38
Common labor	1.25	1.25	1.40
All kinds	1.33	1.56	1.87
Office, including chemist	2.61	4.31	3.91

[a] July.

West Virginia Pulp and Paper Company, Covington, Va.

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Comparative labor figures—Sulphite mill (per day).

	June, 1900.	April, 1903.	April, 1908.
Foreman (drainer room to machine room)	$3.34	$5.00	$8.26
Foreman (night, drainer room to machine room)	2.75		
Machine tender	2.75	2.61	3.78
Back tender	1.50	1.50	1.83
Wet machines		1.40	1.75
Loaders	1.37	1.42	1.69
Reel men	1.33	1.35	1.75
Bleachers	1.67	1.50	1.91
Bleach mixers	1.40	1.50	1.60
Screens, blow pits, and drainers	1.30	1.24	1.54
Foreman (digesters and acid room)	2.88	3.01	4.98–5.82
Cookers	2.00	2.04	3.24
Acid men	2.00	1.87	2.80
Helpers (acid room and digesters)	1.32	1.29	1.61
Mechanics	2.01	1.93	2.12
Foreman (chip house and yard)	2.69	2.69	4.03–4.45
Chip house	1.27	1.47	1.59
Engineers and firemen	1.58	1.69	1.96
Outside labor	1.33	1.38	1.45
Common labor	1.25	1.25	1.40
All kinds	1.48	1.59	1.82

See paper mill figures for office. West Virginia Pulp and Paper Company, Covington, Va.

Mechanics in sulphite mill, April, 1908.—Two, at $3.20; one, at $2.75; two, at $2.50; one, at $2.45; one, at $2.40; one, at $2.38; four, at $2.25; two, at $2.20; two, at $2.15; one, at $2.10; three, at $2; two, at $1.75; two, at $1.60; one, at $1.50; fourteen, at $1.40; one, at $1.35; two, at $1.25.

Scale of wages at New York and Pennsylvania Company's Johnsonburg mill from 1898 to 1908.

Names.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	Per cent.
Oilers	$1.25	$1.25	$1.40 1.35	$1.50 1.40	$1.50 1.40	$1.50 1.40	$1.50 1.40	$1.50 1.40	$1.50 1.40	$1.50 1.40	$1.60 1.80	28 40
Repair crew:												
Blacksmith	2.50	2.50	2.25	2.25	2.25	2.50	2.50	2.75 2.50	2.75 2.50	2.75 2.50	2.75 2.75	10
Helper	1.20	1.50	1.50	1.75	1.40	1.40	1.60	1.60	1.60	1.60	1.75	46
Head carpenter	2.25	2.00	2.25	2.50	2.50	2.50	2.75	3.00	3.00	3.00	3.50	55
Carpenters	1.75	1.75	2.00	2.25	2.25	2.50	2.50	2.50	2.50	2.50	2.50	43
Helpers	1.50	1.50	1.50	1.40	1.40	1.40	1.60	1.60	1.60	1.60	1.60	7
Masons	2.75	2.75	4.00 2.75	4.00 2.75	3.25	4.00	4.00	4.00	4.00	4.00	4.00	45
Helpers	1.20	1.20	1.35	1.40	1.40	1.40	1.50	1.50	1.60	1.60	2.50 1.60	33
Machinists	2.50	2.50	2.50	2.75	2.75	2.75	3.00 2.75	3.00 2.75	3.00 2.75	3.00 2.75	3.50 3.00	20
Do	2.25	2.25	2.25	2.25	2.50	2.50	2.50	2.50	2.50	2.50	2.75	22
Do	2.00	2.00	2.00	2.00	2.00	2.25	2.25	2.25	2.25	2.25	2.50	25
Helpers		1.20	1.35	1.50	1.60	1.60	1.75	1.75	1.75	1.75	1.75	46
Millwright	2.50	2.50	2.50	2.50	2.50	2.50	2.75	2.75	2.75	2.75	2.75	10
Boiler maker	2.50	2.50	2.50	2.75	2.75	3.00	3.00	3.00	2.25	2.25	2.75	10
Helpers	1.50	1.50	1.50	1.40	1.60	1.60	1.75	1.75	1.75	1.75	1.75	16
Pipe fitters, headman	2.00	2.00	1.75	2.00	2.75	3.00	3.00	3.00	3.00	3.00	3.00	50
Do	1.50	1.50	1.75	1.90	1.90	2.00	2.00	2.25	2.25	2.25	2.50	66
Pipe fitters, helpers	1.20	1.20	1.35	1.40	1.75 1.40	1.75 1.40	1.75 1.40	2.00 1.50	2.00 1.50	2.00 1.50	2.00 1.75	46
Painters	1.75	1.75	1.90	2.00	2.00	2.25	2.50	2.50	2.50	2.50	2.50	43
Do	1.20	1.20	1.35	1.60	1.60	1.60	1.75	1.75	1.75	1.75	1.75	46
Rotaries	1.50	1.50	1.65	1.80	1.80	2.00	2.00	2.20	2.20	2.20	2.35	56
		1.20	1.45	1.50	1.50	1.50	1.50	1.50	1.50	1.75	1.85	54
			1.35	1.40	1.40	1.40	1.40	1.40	1.40	1.50	1.60	18
										1.40	1.50	
Rewinders	1.25	1.25	1.50	1.60	1.60	1.60	1.60	1.60	1.60	1.60	1.75	40
Size maker	1.50	1.75	1.75	1.85	1.85	2.00	2.00	2.00	2.00	2.00	2.00	33
Sample folder		.75	1.15	1.30	1.30	1.40	1.40	1.40	1.40	1.40	1.40	86
Shippers	1.75											
	1.50											
Evaporator men	1.75	1.75	1.75	1.85	2.00	2.10	2.10	2.10	2.30	2.30	2.50	43
												37.03
Acid:												
Headman	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	
Helper	1.50	1.50	1.50	2.00	2.00	2.25	2.25	2.25	2.50	2.50	2.70	80
Do				1.50	1.50	1.75	1.75	1.75	1.75	1.75	1.85	23

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Scale of wages at New York and Pennsylvania Company's Johnsonburg mill from 1898 to 1908—Continued.

Names.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	Per cent.
Bleachers:												
Headman	$1.75	$1.75	$1.75	$1.75	$1.90	$1.90	$1.90	$1.90	$1.90	$1.90	$2.15	23
Helpers	1.25	1.25	1.35	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.75	40
Engineers	1.90	1.90	1.90	1.90	1.90	2.10	2.25	2.25	2.25	2.25	2.40	26
Chipper men:												
Headman	1.60	1.60	1.60	1.60	1.60	1.70	1.70	1.80	1.80	1.90	1.90	19
Helpers	1.40	1.40	1.40	1.40	1.40	1.60	1.60	1.60	1.60	1.80	1.70	21
Do	.....	.....	.....	.....	.....	1.40	1.40	1.40	1.40	1.70	1.60	14
Digesters:												
Headmen	2.00	2.25	2.25	2.50	2.50	2.50	2.50	3.00	3.00	3.00	3.25	62
Helper	1.50	1.50	1.65	1.65	1.65	1.65	1.65	1.80	1.80	1.80	2.15	43
Machine:												
Machine tender	2.00	2.00	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.40	20
Cutter	1.50	1.50	1.65	1.70	1.70	1.75	1.90	1.90	1.90	1.90	2.15	43
Wheelers	1.25	1.50	1.65	1.65	1.65	1.65	1.50	1.50	1.50	1.50	1.80	44
Do	1.20	.....	.....	1.60	1.50	1.50	1.50	1.50	1.40	1.50	1.80	50
												36.28
Filters:												
Filter man	1.75	1.75	1.75	1.90	1.90	2.00	1.90	1.90	1.90	1.90	1.90	8
Helper	.....	1.50	1.60	1.80	1.80	1.90	1.50	1.50	1.50	1.50	1.60	7
Do	.....	.....	1.40	1.70	1.70	1.70	.....	1.40	1.40	1.40	1.50	.....
Do	.....	.....	.....	.....	1.40	1.40	.....	.....	.....	.....	.....	.....
Finishers:												
Headman	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	12
Trimmer	2.00	1.75	1.75	2.00	2.00	2.00	2.00	2.00	2.25	2.25	2.25	14
Finishers	1.75	1.75	1.75	1.75	1.75	1.75	2.00	2.00	2.00	2.00	2.00	16
Do	1.50	1.50	.....	.....	.....	.....	1.75	1.75	1.75	1.75	1.75	7
Frame handler	1.40	1.40	1.40 1.50	1.40 1.50	1.40 1.50	1.40 1.50	1.40 1.50	1.50 1.60	1.50 1.60	1.50 1.60	1.50 1.60	7 40
Counter girls	.90	.90	1.00	1.15	1.15	1.15	1.15	1.25	1.25	1.25	1.25	53
Do	.75	.75	.....	.90	.90	.90	1.00	1.15	1.15	1.15	1.15	47
Leachers:												
Leacher men	1.60	1.60	1.60	1.80	1.80	2.00	2.20	2.20	2.20	2.20	2.35	.....
Helpers	.....	.....	.....	.....	.....	.....	1.40	1.40	1.40	1.40	1.50	12
Machine men:												
Pulp machine tenders	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.25	16
Pulp back tenders	1.50	1.50	1.50	1.50	1.60	1.60	1.60	1.60	1.60	1.60	1.75	12
Pulp finisher	1.60	1.60	1.60	1.60	1.65	1.65	1.65	1.65	1.65	1.65	1.80	100
Pulp reel boy	.75	.75	1.35	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.50	14
Paper machine tenders	3.50	3.50	3.50	3.50	3.80 4.30	3.80 4.30	3.75 4.30	4.00 4.30	4.00 4.30	4.00 4.30	4.00 4.30	28
Paper back tenders	1.60	1.60	1.60	1.75	2.15 1.90	2.15 1.90	2.00 1.90	2.00 2.15	2.00 2.15	2.00 2.15	2.00 2.15	20
Paper third hand	1.20	1.20	1.35 1.30	1.60 1.45	1.60 1.45	1.65 1.45	1.60 1.45	1.60 1.45	1.60 1.45	1.60 1.45	1.60 1.45	
Broke hustler	.....	.....	.....	1.00	2.00	1.45	1.45	1.45	1.45	1.45	1.45	.....
Do	.....	.....	.....	.....	1.45	.....	.....	.....	.....	.....	.....	.....
Reel boys	.....	.....	.....	.....	.....	1.00	1.45	1.45	1.25	1.25	1.25	.....
Do	.....	.....	.....	.....	.....	.....	.....	1.25	.....	.....	.....	.....
Cutters:												
Cutter man	.....	.....	2.50	2.60	2.65	3.00	3.25	3.25	3.25	3.25	3.00	20
Helpers	.....	.....	1.35	1.40	1.50	1.65	1.65	1.65	2.50 2.00 1.65	3.00 2.00 1.65	2.50 1.75 1.65	22
Do	.....	.....	.....	.....	1.40	1.40	1.60	1.60	1.60	1.60	1.60	.....
Girls	.....	.....	.....	.....	.80	.90	.90	1.00	.....	.....	.....	.....
Do	.75	.75	.80	.90	1.00	1.00	1.00	1.15	1.15	1.15	1.15	53
Steam batteries:												
Water tenders	2.00	2.00	2.15	2.25	2.25	2.45	2.45	2.45	2.45	2.45	2.90	45
Do	1.75	1.50	1.35	2.10 1.80	2.10 1.80	2.25	2.20	2.20	2.20	2.20	2.40	37
Do	.....	1.65	1.90 2.00	1.90	1.90	2.25	2.45	2.45	2.45	2.45	2.60	58
Firemen	.....	1.40	1.65	1.80	1.80	2.00	2.20	2.20	2.20	2.20	2.35	68
Do	.....	.....	.....	.....	.....	.....	.....	.....	1.75	1.75	.....	.....
Ash men	.....	1.20	1.35	1.45	1.45	1.45	1.50	1.50	1.50	1.50	1.80 2.00	66
Yard:												
Teamster	1.75	1.75	1.75	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	6
Helpers	1.35	1.35	1.35	1.50	1.50	1.50	1.50	1.50	1.50	1.65	1.65	22
Truck loaders	1.30	1.30	1.60	1.60	1.50	1.75	1.75	1.75	1.75	1.75	1.75	34
Laborers	1.20	1.20	1.35	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.50	25
Calender men:												
Headman	.....	.....	2.00	2.25	2.00	2.00	2.25	2.50	2.00	2.00	2.35	17
Calender men	.....	.....	1.80	1.80	1.80	1.80	1.80	2.00 1.80	1.80	1.80	2.00	11
Helpers	.....	.....	1.35	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.90 1.50	11
												29.06

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Scale of wages at New York and Pennsylvania Company's Johnsonburg mill from 1898 to 1908—Continued.

Names.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	Per cent.
Alkali room:												
Headmen	$1.80	$1.80	$1.80	$2.00	$2.00	$2.00	$2.20	$2.20	$2.50	$2.50	$2.50	$38
Helpers	1.60	1.60	1.70	1.90	1.90	2.00	2.00	2.00	2.00	2.00	2.35	47
Do	1.35	1.35	1.45	1.55	1.55	1.55	1.55	1.55	1.55	1.55	1.75	30
Do	.....	.....	.....	.....	.....	.....	1.40	1.40	1.40	1.40	1.50	.....
Bleachers	1.60	1.60	1.60	1.70	1.90	1.90	1.90	1.90	1.90	1.90	2.15	34
Do	1.50	1.50	1.50	1.60	1.40	1.40	1.40	1.40	1.40	1.40	.....	.....
Do	1.00	1.20	1.15	1.40	1.10	1.10	1.10	1.10	1.10	1.10	1.10	10
Do	.....	1.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Beater men:												
Headmen	2.50	2.50	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.50	3.50	40
Color men	1.75	2.25	2.50 / 4.25	2.50 / 2.25	2.50 / 2.25	2.50 / 2.25	3.00 / 2.25	3.00 / 2.75	3.00 / 2.75	3.00 / 2.75	3.00 / 2.75	57
Helpers	1.35	1.35	1.35	1.50	1.50	1.60	1.65	1.65	1.65	1.65	1.70	26
Do	1.25	1.25	.....	1.45	1.45	1.50	1.60	1.60	1.60	1.60	1.70	36
Do	1.20	1.20	.....	1.40	1.40	1.50	1.55	1.60	1.60	1.60	1.60	33
Do	.....	.....	.....	.....	.....	1.45	1.45	1.45	1.45	1.60	1.60	.....
Brown stock	1.40	1.65	1.50	1.60	1.60	1.70	1.70	1.70	1.70	1.75	1.85	32
Do	1.25	1.40	1.40	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.50	20
Wet machines	1.65	1.65	1.75	1.75	175	1.75	1.75	1.75	1.75	1.75	1.75	6
Do	1.00	1.00	1.20	.....	.....	.....	1.40	1.40	1.40	1.40	1.40	40
Engineers:												
Corliss Nos. 1 and 2	1.50	1.50	1.50	1.60	1.60	1.75	1.90	1.90	1.90	1.90	1.90	26
Ideal	1.40	1.40	1.60	1.70	1.70	1.75	1.90	2.15	2.15	2.15	.....	53
Corliss No. 3	.....	.....	2.25	2.25	2.25	2.50	2.75	2.75	2.75	2.75	2.75	22
Do	.....	.....	2.00	2.00	2.00	2.00	2.20	2.20	2.20	2.20	2.20	10
Do	.....	.....	.....	1.40	1.40	1.40	1.50	1.50	1.50	1.50	1.50	.....
Heaters	.....	.....	.....	.....	.....	.....	.....	2.00	2.15	2.15	2.30	.....
Electric, manufacturing	.....	.....	.....	.....	.....	.....	.....	.....	2.50	2.50	2.90	.....
Chippermen	1.75	1.75	1.75	1.90	1.90	1.90	1.90	1.90	1.80	1.80	1.90	8
Helpers	.....	1.25	1.40	1.50	1.50	1.50	1.50	1.50	1.70	1.70	1.80	44
Do	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.60	1.70	.....
Cleaners	1.20	1.20	1.35	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.50	25
Digesters:												
Headmen	1.75	1.75	1.75	1.95	1.95	2.00	2.10	2.10	2.25	2.25	2.50	43
Helpers	1.25	1.20	1.40	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.75	40
Drainers	1.25	1.25	1.00	1.45	1.45	1.45	1.45	1.45	1.45	1.45	1.50	20
Do	1.20	1.20	1.15	1.10	1.40	1.40	1.40	1.40	1.40	1.40	1.50	25
Do	.75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do	.....	.....	1.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
Felt washer	.....	.....	1.35	1.50	1.50	1.60	1.60	1.75	1.75	1.75	1.75	30
Electrician	1.75	1.75	2.00	2.25	2.25	2.25	2.50	3.00	3.00	3.00	3.00	71
Helper	.....	1.50	1.50	1.50	1.75	1.75	2.25	2.25	2.25	2.25	2.25	50
												32.71

Rates of tariff on paper.

Ground wood, $\frac{1}{12}$ cent per pound.
Chemical fiber, $\frac{1}{8}$ cent per pound.
Bleached chemical fiber, $\frac{1}{4}$ cent per pound.
Printing paper, value 2 cents per pound.
Wrapping paper, various grades.
Parchment.

Rates on supplies for paper mills' use.

Clay	$2.50 per ton
Felts	44 cents per pound and 60 per cent or 100 per cent
Colors	35 per cent
Wire cloth	
Cotton dryer felts	45 per cent
Hemp twines	13 cents per pound or 100 per cent
Alum and alum cake	$\frac{1}{2}$ cent per pound or 50 per cent
Lumber	
Machinery	45 per cent
Steel forgings	35 per cent
Steel sheets	35 per cent
Soda ash	25 per cent
Leather belting	35 per cent
Rubber belting	30 per cent
Salt	8 to 12 cents per hundred
Bleach	20 per cen

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Wages.

	American.	European.
Women	About $1 per day (indoor work)	$0.37½ to $0.50
Men	From $1.50 to $5 per day, variation based on skill	.50 to 1.50

Investment.

It is estimated that the amount of capital invested in the manufacture of book papers, and grades of paper included in that category, is in round figures, about $105,000,000. In this investment are included the working capital and the value of timber lands and soda fiber and sulphite mills, which are maintained, operated, and conducted in connection with such book-paper plants.

All book-paper mills, however, are not equipped with their own chemical fiber mills for the manufacture of sulphite and soda pulp.

Labor.

The aggregate number of wage-earners employed in the mills manufacturing book paper and similar grades in the United States, including the soda-fiber and sulphite plants operated and conducted in connection therewith, is estimated to represent an army of, approximately, 30,000.

Conclusion.

It is contended that—so far as the paper-making industry is concerned—a protective tariff which insures for the American workingmen employed therein the highest scale of wages of any similar class of labor in any other country, and at the same time provides him with abundant opportunity for employment, is of itself one of the most potential arguments that can be advanced in favor of its retention.

Experiment might not only prove fallacious, but disturbing to the paper-making industry as a whole, and perhaps inflict unnecessary and unjust hardship upon our American wage-earners.

The tariff duty on paper and pulp should be maintained and continued at its present standard. It is not alone required in the interests of the paper manufacturer, but likewise in the interests of the large army of American laborers dependent upon that industry for its employment.

Respectfully submitted.

STATEMENT OF MR. MILTON E. MARCUSE, OF RICHMOND, VA.

The CHAIRMAN. What is your name?

Mr. MARCUSE. Milton E. Marcuse.

The CHAIRMAN. All right. Proceed.

Mr. MARCUSE. Before submitting the paper which I have I will say that I was interested in the question put by Mr. Gaines to Mr. Sullivan, as to the amount of duty involved on one particular book, and working on that I have figured out that if the total duty were saved to the consumer of wrapping paper that he would save 1 cent in wrapping up 500 pounds of sugar.

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Speaking for the wrapping-paper manufacturers, we wish to submit that wrapping-paper manufacturers, representing an investment of about $80,000,000 among 103 mills specifically engaged in this industry in America and employing many thousands of skilled employees, artisans, and laborers, receive little or no protection under the existing law, the duty of 25 per cent ad valorem permitting the importation of a large tonnage of so-called Kraft paper manufactured by European manufacturers. This paper, as its name indicates, is exceedingly strong, so strong that a sheet of 25-pound paper (25 pounds to a ream, 480 sheets of 24 by 36 inches) does the same service as our domestic 40 or 50 pound No. 1 manila. It is manufactured in paper mills where the investment is relatively small and the labor cheap. These manufacturers can build and equip their plants for very much less than the cost required in America. They have machinery and building material free of duty and enjoy low labor costs in all the departments of their business—building, construction, and operating. Therefore they can afford to run their machinery slow enough to produce this grade, which yields but a very small daily production per inches of machine, whereas in America we can not meet their competition on account of the larger investment and production costs, as we are compelled to run for tonnage, and in order to get the lowest possible production costs we are forced to run such weights and grades as to enable us to secure these results.

The growth of the Kraft paper-making industry and its importation into this country is increasing at an alarming rate. This has grown from nothing three years ago to an importation last year of between 10,000 and 12,000 tons, so we are informed, and as explained before on account of its superior strength it displaces twice this amount of tonnage of domestic production. If we were afforded a proper protection on these grades we are sure American enterprise would prepare itself to take care of the increased demand for these grades, as already there have been many experiments made in American mills, and one or two manufacturers have been looking very seriously into the problem. To emphasize the effect of this competition let us cite the following comparative table. Costs of manufacture at mills, properly balanced.

No. 1 manila, made of 60 per cent sulphite (popular quality), costs as follows:

60 per cent sulphite, at $35 per ton	$21.00
40 per cent ground wood, at $18 per ton	7.20
	28.20
10 per cent shrinkage	2.82
Conversion	16.00
Freight	4.00
Total	51.02

Or $2.55 per hundredweight.

The Kraft paper costs 3 cents per pound f. o. b. port of entry, plus 25 per cent duty, 75 cents per hundredweight, total $3.75 per hundredweight, f. o. b. port of entry. If sold at 4¼ cents per pound, a ream of 25 pounds costs the consumer $1.06¼ per ream. No. 1 manila, 40-pounds basis, if sold at 3¼ cents, would cost the consumer $1.30 per ream, or 23¾ per ream in favor of the imported paper. We therefore claim that this grade of paper, where labor costs are as high relatively

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as the costs on the higher forms of steel products, should receive higher protection. We have prepared the following suggestions, which we ask you to include in your schedule on paper:

Proposed schedule for wrapping paper, made in whole or in part from sulphate fiber and commonly known in the trade as "Kraft paper" (or any substitute of equal strength, quality, or appearance), white or colored, and of all kinds of wrapping paper, decorated or containing a design or character of any description, as follows:

Weighing over 65 pounds to the ream of 480 sheets, on a basis of 24 by 36 inches, and whether in reams or any other form, 25 per cent ad valorem; if weighing 40 pounds and not over 65 pounds to the ream, 30 per cent ad valorem; if weighing 30 pounds and not over 40 pounds to the ream, 40 per cent ad valorem; if weighing 20 pounds and not over 30 pounds to the ream, 50 per cent ad valorem.

All other papers known as wrapping paper, not especially provided for in the above, 25 per cent ad valorem.

Novelty wrapping papers containing designs and characters are now being produced in this country, both with and without patents, that must compete with foreign-made papers of like character.

The foreign manufacturers can produce these papers and land them in the United States at a price that will not permit the domestic manufacturers to compete, and, at the same time, nullify the value of the patent issued by this Government, for, owing to the patent laws prevailing now in most of the foreign governments, a patented article must be manufactured in those countries or be available to anyone who chooses to use them.

Kraft paper weighing 20 pounds and under should be classed as tissue.

INVESTMENT.

The wrapping-paper industry is one peculiar unto itself. It occupies a different relationship as regards investment to production than any other industry in this country. To build and equip a wrapping-paper mill requires $2 investment for each $1 of annual production. This does not consider timber lands or working capital, but does include all expenditures for development of water power, construction of pulp mills (mechanical and chemical), paper mills, etc. Therefore, in order to secure a yield of only simple interest on investment, the paper manufacturer has to make 12 per cent on his product, free of all depreciation, costs, etc. Men do not invest in manufacturing business for 6 per cent returns. They would not employ their time, intelligence, and money at so great a labor and risk for so small a return. Good judgment would dictate the preference of lending their money on good collateral for such returns. They must see at least 10 per cent on capital before they would place their money in such enterprises, in which they are not only serving their own interests but are public benefactors, in developing the country's natural resources and giving employment to its labor. To make this 10 per cent they would have to make 20 per cent on their product, and the result of recent years, as shown by ledger balances, shows this to be impossible, in view of foreign competition.

In considering the tariff on paper we would like for you to recognize the relation which exists between wood and the products therefrom, and iron ore and the products therefrom. Whether converting

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wood into ground wood pulp for paper purposes, or in converting iron ore into pig iron, the relation of labor to finished product is relatively the same.

From every point of view, in bringing wood products and steel products into their relation with each other, whether considering the labor expenditure to produce $1 worth; or whether considering the plant investment necessary to produce $1 worth, or whether considering the investment necessary for protection, the supplies of raw material as they are found in the earth or growing from the earth, or whether considering the abstract aspect in connection with political economy, it appears that the duties upon wood and the products thereof should be greater than the duties upon steel (iron ore) and the products thereof, and yet we find that under the present tariff this condition is not only reversed, but most severely reversed, because in some cases the duties upon important heavy steel products are three times as great as upon corresponding wood products.

We now ask that whatever duties be placed upon iron ore and the products therefrom, correspondingly higher duties be placed upon wood and the products therefrom.

I have also a paper here——

Mr. UNDERWOOD. The duty on iron ore is 50 cents a ton.

Mr. MARCUSE. And pulp wood is free.

Mr. UNDERWOOD. Pulp wood is free. You want 50 cents a ton on wood pulp? Is that what you claim?

Mr. MARCUSE. Whatever your judgment sees fit to give to iron ore, we would like the relationship of wood and its products considered in its relative position.

I have also here the views of Mr. Gustavus Millhiser on the same subject, which I will submit with the other paper.

(The paper of Mr. Gustavus Millhiser, submitted by Mr. Marcuse, will appear at the end of Mr. Marcuse's statement.)

Mr. UNDERWOOD. I want to ask you, on this subject of wrapping paper, what is the volume of the business in the United States?

Mr. MARCUSE. About 700,000 tons per annum.

Mr. UNDERWOOD. About 700,000 tons per annum. That is, the consumption in this country is 700,000 tons?

Mr. MARCUSE. The production in the country is 700,000 tons. That is what you asked me.

Mr. UNDERWOOD. What is the importation?

Mr. MARCUSE. The importation is a difficult problem to reach, because the wrapping paper comes under that indescribable quantity of "not otherwise specified."

Mr. UNDERWOOD. You mean that you have no figures on the amount of importations?

Mr. MARCUSE. We have made some effort to get some, and hope that we will be able at some not distant day to give those figures.

Mr. UNDERWOOD. But at the time you prepared your statement——

Mr. MARCUSE. I was looking into the subject of Kraft paper, and the importations that I found in one port of entry gave me an indication that the quantity we imagined was being imported should be cut down exactly one-half. The effect that it has had on the trade has influenced the manufacturers of paper to believe that from 20,000 to 25,000 tons were imported last year, but when we found out that

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about 4,000 tons were received at one port of entry, we concluded that from 10,000 to 12,000 tons were the receipts in the United States.

Mr. UNDERWOOD. You think that the production of wrapping paper in this country amounts to about 700,000 tons, and the importations to about 12,000 tons?

Mr. MARCUSE. But that is of this one particular grade. This is a new product, that has not only disturbed us, but has disturbed us twice as much as it would if it was not serving twice the duty that our papers do.

Mr. UNDERWOOD. On that new product, the importation——

Mr. MARCUSE. If it grows from nothing to 12,000 tons in the short space of three years, in simple geometrical progression, what will it do in ten years? That is what alarms us.

Mr. UNDERWOOD. It might be that the market has been already filled, possibly.

Mr. MARCUSE. To draw it more closely to your attention, it has been a matter of only the recent past when you carried home from the first-class stores of your community your bundles wrapped in Kraft paper. Heretofore they have been wrapped in No. 1 manila or fiber papers of American production. But now, in all of the larger stores, in the larger cities, you find they are working this into common use.

Mr. UNDERWOOD. I do not care to take up the time of the committee in arguing this question with you, if you will pardon me; but I would like to——

Mr. MARCUSE. I do not want to take up any of your time.

Mr. UNDERWOOD. I say, I would like some information, so that if the question comes to a vote I can intelligently vote on the matter. Therefore I want the information for my own guidance. You stated the amount of the production in this country. Now, I would like to know the total amount of importations, in the line of wrapping paper, if you know it. If you do not, you may say so.

Mr. MARCUSE. I do not know it, but I will try to ascertain and give it to you. I have tried to do it, but have not been able to give it to you as yet.

Mr. UNDERWOOD. Is there any exportation of this paper?

Mr. MARCUSE. Of our papers?

Mr. UNDERWOOD. Yes.

Mr. MARCUSE. It is very limited.

Mr. UNDERWOOD. Where do you export it to?

Mr. MARCUSE. I hardly think of exporting now. There is some little exporting going on to Cuba.

Mr. UNDERWOOD. Where have you been exporting in the past?

Mr. MARCUSE. The export business for domestic manufactures in wrapping paper is so small that it is not a factor.

Mr. UNDERWOOD. If you can, I wish you would give the information.

Mr. MARCUSE. As I say, the figure is so infinitesimal that it is not a factor as to which I could even give you the information you are trying to get. I know some little goes to Cuba, and before Porto Rico was made a part of our country some went to Porto Rico.

Mr. UNDERWOOD. Some goes to the Continent, does it not?

Mr. MARCUSE. I do not know of any wrapping paper going to the Continent.

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Mr. UNDERWOOD. You ship none to England?

Mr. MARCUSE. I know of none going there.

Mr. UNDERWOOD. Of course you only speak for your own house and not for the trade?

Mr. MARCUSE. I only speak for my own house and from a general knowledge of the trade.

Mr. UNDERWOOD. But you are unable to give the information at present as to a comparison of the amount of the volume of this business that is controlled to-day by the American product as compared with the other?

Mr. MARCUSE. No.

Mr. UNDERWOOD. I would be obliged to you if you would put that statement in, if you can get the figures. That is one of the important propositions that we want to know about.

Mr. MARCUSE. I will be very pleased to do that at a later time, if possible.

Mr. BOUTELL. Who are your principal purchasers?

Mr. MARCUSE. The jobbers.

Mr. BOUTELL. You do not sell to the paper-bag manufacturers, do you?

Mr. MARCUSE. Some of the paper manufacturers do who make bag papers. They sell to the paper-bag manufacturers.

Mr. BOUTELL. Some of the class that you represent here?

Mr. MARCUSE. Yes, sir.

Mr. BOUTELL. There is a large exportation of paper bags, is there not?

Mr. MARCUSE. So I am informed.

Mr. BOUTELL. To Australia and South Africa?

Mr. MARCUSE. Yes.

Mr. BOUTELL. That is made out of your paper?

Mr. MARCUSE. Yes.

Mr. BOUTELL. Are those paper bags that are sold in Australia and South Africa sold in competition with the English and German manufactures?

Mr. MARCUSE. Being unfamiliar with that branch of the business, I am unable to give a reply, but there are other gentlemen here who know more about it.

Mr. BOUTELL. There are paper-bag manufacturers represented here, are there?

Mr. MARCUSE. Yes.

Mr. CLARK. How much per cent did you say you are making?

Mr. MARCUSE. We are making 700,000 tons.

Mr. CLARK. But I ask you how much per cent of money you are making on your investment?

Mr. MARCUSE. Well—how much per cent we are making on our investment?

Mr. CLARK. Yes; it is a simple question.

Mr. MARCUSE. It is a very simple question, and a very difficult one to answer.

Mr. CLARK. Did you not state a while ago that you made 12 per cent?

Mr. MARCUSE. That we would have to make 12 per cent.

Mr. CLARK. Well, how much are you making?

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Mr. MARCUSE. I think for an average period of years if it showed 5 per cent net above depreciation and costs the manufacturers would consider themselves fortunate.

Mr. CLARK. How much did you make from 1897 to 1907?

Mr. MARCUSE. I have not been in the business that long, but I want to say now that 5 per cent would be a fair average of the per annum profits that paper manufacturers made in that period.

Mr. CLARK. That is, after you count out the interest, depreciation, and the whole thing?

Mr. MARCUSE. After we count out nothing. The interest is there.

Mr. CLARK. You are all getting poor, then, according to your own tale.

Mr. MARCUSE. I think we are.

Mr. CLARK. You are worse off now than you were ten years ago?

Mr. MARCUSE. We are no better off.

Mr. CLARK. You have not made any money in the meantime?

Mr. MARCUSE. No, sir; we have not made the money that a manufacturing business entitles us to.

Mr. CLARK. I am not talking about what a manufacturing business entitles you to. I am talking about how much you made.

Mr. MARCUSE. Well, I have answered that.

Mr. CLARK. Did you make money or did you lose it?

Mr. MARCUSE. Some years we made money and some years we lost money.

Mr. CLARK. Well, how would it average, on the whole?

Mr. MARCUSE. Five per cent per annum for the last ten years is a fair average of what the paper manufacturers have made.

Mr. CLARK. You said a while ago that if a man did not make 12 per cent——

Mr. MARCUSE. I said——

Mr. CLARK. Wait a minute. You said if a man did not make 12 per cent on his investment in the manufacturing business, he would pull his money out of the manufacturing business and invest it in securities. Do you know of any securities that will pay 12 per cent?

Mr. MARCUSE. I beg your pardon. I made no such statement.

Mr. CLARK. Well, it sounded like that. What was it?

Mr. MARCUSE. I said that in order to make 6 per cent on the capital invested you have to make 12 per cent on the production of your plant.

Mr. CLARK. And you said that if he did not make that much he would pull his money out and invest it in good securities, did you not?

Mr. MARCUSE. No; I said that that kind of a return does not attract men to that kind of business.

Mr. CLARK. Well, now, what was it you said?

Mr. MARCUSE. Would you like to have it read again?

Mr. CLARK. I would like to have the same statement made again, the same as before.

Mr. MARCUSE. I have it right here. It has not been changed.

Mr. CLARK. Well, state it the way you did before.

Mr. MARCUSE. I said: "To build and equip a wrapping-paper mill requires $2 investment for each $1 of annual production. This does not consider timber lands or working capital, but does include all expenditures for development of water power, construction of pulp

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mills (mechanical and chemical), paper mills, etc. Therefore, in order to secure a yield of only simple interest on the investment the paper manufacturer has to make 12 per cent on his product, free of all depreciation, costs, etc." Then I went on to say: "Men do not invest in manufacturing business for 6 per cent returns. They would not employ their time, intelligence, and money at so great a labor and risk for so small a return. Good judgment would dictate the preference of lending their money on good collateral for such returns. They must see at least 10 per cent on capital before they would place their money in such enterprises, in which they are not only serving their own interests," etc.

Mr. CLARK. How many concerns, or firms, or corporations, or whatever you are pleased to call them, are there?

Mr. MARCUSE. There are 103 wrapping-paper manufacturers.

Mr. CLARK. Making the same kind of paper that you are?

Mr. MARCUSE. No.

Mr. CLARK. How many of them are making the same kind you make?

Mr. MARCUSE. There is such a diversity of the character of wrapping paper that—well, I would say probably 33⅓ per cent are making the same grades on which I work.

Mr. CLARK. And are they all selling at the same price?

Mr. MARCUSE. No; there is a variation in the price.

Mr. CLARK. You compete with each other?

Mr. MARCUSE. We compete with each other.

Mr. CLARK. There is no agreement?

Mr. MARCUSE. There is no agreement.

Mr. CLARK. And no connection with a paper trust?

Mr. MARCUSE. None in the world, sir.

Mr. CLARK. And no "gentleman's agreement" with you?

Mr. MARCUSE. No "gentleman's agreement" with me.

Mr. CLARK. Do you have an "annual jubilee," too?

Mr. MARCUSE. I do.

Mr. CLARK. Do you talk business at those meetings?

Mr. MARCUSE. We do not have time at those meetings. [Laughter.]

Mr. CLARK. You do not? That is all.

(The statement of Mr. Gustavus Millhiser, submitted by Mr. Marcuse, is as follows:)

VIEWS OF MR. GUSTAVUS MILLHISER, PRESIDENT OF THE BEDFORD PULP AND PAPER COMPANY, RICHMOND, VA., ON THE SUBJECT OF THE TARIFF REVISION AS REGARDS THE PAPER SCHEDULE, AND THE RELATION OF THIS SCHEDULE TO THE STEEL SCHEDULE.

We want to approach this subject, not from the selfish standpoint of its commercial aspect as applied to the possible profit to our particular business only, but we want to approach the subject along the combined lines of commercialism, which is self-interest, and patriotism, which is the altruistic interest.

In doing this, the first step is to recognize that the people of this country have practically voiced that protection, legitimately applied, meets their approval. We wish to keep before us the fact that while underprotection is an injustice to the particular industry so affected,

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on the other hand, overprotection is an injustice to all of the many millions of the people of this country.

We realize that under the application of the protective tariff due regard should be had to strengthening the sinews of the country and never weakening them at any point.

We recognize that among the important sinews of future strength in this country wood and steel form important and very far-reaching features.

We recognize that these two articles are totally unlike the products of the soil, which can be produced from year to year in such quantities as the efforts of man may be stimulated to produce.

We realize that proper forestry laws can be made to provide for such a reproduction of forest products as to make the supply of such products practically inexhaustible, and especially so in face of the fact that we have rapidly drifted into extensive substitution of steel for wood in many forms of construction work.

We realize that the natural storehouses in the earth of steel (iron ore) can not be replenished by the powers or ingenuity of man; that once exhausted they are forever exhausted; and we realize that to-day the nation, with its natural storehouses of iron ore exhausted, occupies a position which places it almost at the mercy of other nations provided with an ample supply of iron ore.

We are living in a steel age, and to preserve our supplies in the earth is the first duty in the direction of protection which is due the American people.

We ask and claim that, inasmuch as wood does renew itself and can be made to do so to an almost unlimited extent, and that as steel (iron ore) does not and can not be made to renew itself—we ask and claim that whatever protection may be seen fit to apply to wood and the products thereof still lower duties be applied to iron ore and the products thereof.

Not only for the perfectly clear reasons that I have mentioned does this policy impress itself and intrench itself behind the spirit of justice and justice itself, but it would also be helpful toward improving the position of each and every man, woman, and child in the United States engaged properly in the struggle for advancement.

It would not only reduce to some extent, varying only in degree, the cost of every operation in which one can engage to-day; but in doing so, it would also enable each and every manufacturer, who has articles to export or who might be induced to reach out in the direction of articles for export, to be put in a more favorable position to conduct his present operations and to look forward to increasing same in existing and yet unexplored directions.

Under the present tariff, wood in the form of logs (that is to say, in its crudest form) is on the free list, and we do not ask that it be removed from the free list; to the contrary, we want it to remain there, and we correspondingly ask that iron ore be similarly placed upon the free list.

We find that timber, when converted into boards for building purposes, or when converted into ground wood pulp for paper purposes, carries a duty of about 10 per cent, and we find, that under the existing tariff, iron ore, when converted into pig iron, carries a duty of about 33 per cent. The actual expenditure for labor in producing $1 worth (at cost value) of either, boards for building purposes or

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ground-wood pulp for paper purposes—embracing all of the operations from the tree in the forest to the production of these articles—is as great (or greater) as is the actual expenditure for labor in producing $1 worth (at cost value) of pig iron—embracing all of the operations from the ore in the ore bed to the production of the pig iron.

We feel that justice, coupled with the best business discretion, would leave these duties upon timber products at the existing, say, 10 per cent; but would correspondingly place pig iron below 10 per cent.

We find that the duty under the existing tariff upon chemical pulp is, upon an ad valorem basis, practically the same as upon ground-wood pulp; i. e., 10 per cent, and we find that the duty upon steel rails is about 40 per cent. The actual expenditure for labor in producing $1 worth (at cost value) of chemical pulp, embracing all of the operations from the tree in the forest to the production of chemical pulp—is as great (or greater) as is the actual expenditure for labor in producing $1 worth (at cost value) of steel rails, embracing all of the operations from the ore in the ore bed to the production of the steel rail.

We do not ask that the rate of duty upon chemical pulp be advanced, but we do, in the interest of ourselves and the whole American people, ask that a corresponding basis of protection be applied to steel rails, by which, we mean, to make it less than 10 per cent.

We find that under the existing tariff print paper carries a duty of about 15 per cent and, we will say, other papers about 25 per cent; and we find that articles of steel manufacture corresponding to these in their removal from raw stock toward finished products carry duties of at least double these percentages.

The complete expenditure for plant for producing finished paper, embracing all of the operations from the tree in the forest to the production of finished paper, is $2 to $2.25, average, for each $1 worth (at cost value) of finished paper produced. The complete expenditure for plant for producing the heavy finished products of steel, embracing all of the operations from the ore in the ore bed to the production of the heavy finished products of steel, is $1 to $1.25, average, for each $1 worth (at cost value) of the heavy finished products of steel produced.

The investment involved for a paper mill to protect itself in its wood supplies by ownership of either timber lands or stumpage rights is, for each $1 worth (cost value) of paper produced, as great as the investment involved for a steel plant to protect itself with its combined supplies, in the ground, of iron ore, coal, and limestone, provided that on the part of the steel plant this protection be obtained by ownership of the iron ore, coal, and limestone deposits; but if this protection on the part of the steel plant be accomplished by leases based upon the payment of royalties at the times these different products may be mined, then the investment for such protection falls far below (or disappears entirely) the investment required for protection on the part of the paper mill.

From every point of view, in bringing wood products and steel products into their relation with each other, whether considering the labor expenditure to produce $1 worth, or whether considering the plant investment necessary to produce $1 worth, or whether consid-

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ering the investment necessary for protecting the supplies of raw material as they are found in the earth or growing from the earth, or whether considering the abstract aspects in connection with political economy, it appears that the duties upon wood and the products thereof should be greater than the duties upon steel (iron ore) and the products thereof, and yet we find that under the present tariff this condition is not only reversed, but most severely reversed, because in some cases the duties upon important heavy steel products are three times as great as upon corresponding wood products.

It should be borne in mind that all the products which, by their nature, are heavy in gross weight in relation to their cost value, carry, by their very nature, an innate protection; e. g., 100 pounds of merchandise, valued at $100, and subject to an import freight of $1, would carry an innate protection of 1 per cent, whereas 100 pounds of merchandise valued at $10 and subject to an import freight of $1 would carry an innate protection of 10 per cent. The heavy products of steel and the corresponding products of wood are conspicuous under this head.

The railroad freight charges for assembling all of the raw materials and afterwards transporting the finished products—both of wood and steel—constitute a large part of the production cost.

Should the steel schedules be revised in the direction that these views would suggest, then the railroads, by getting their steel supplies at lower prices, would, instead of crying for increase in freight rates, in a short time, no doubt, be prepared to decrease freight rates; and the benefits from such a change would not accrue to any favored spots, but would reach, in some degree, every man, woman, and child in the nation.

I can only believe that the discrepancies under the present tariff in the comparative treatment of wood and steel products was due to the oversight in failing to bring these two products together and considering their relation to each other.

We now ask that whatever duties be placed upon iron ore and the products therefrom, correspondingly higher duties be placed upon wood and the products therefrom.

Mr. ELLIOTT. May I say something about that paper of Mr. Marcuse, Mr. Chairman?

The CHAIRMAN. Yes; if it is something you wish to state with reference to this wrapping paper.

Mr. ELLIOTT. It is. It has reference to this Swedish Kraft paper.

The CHAIRMAN. I wish, first, the reporter would make this note: Onionskin paper is classified as paper not specially provided for under paragraph 403 of the act of 1897. It is claimed, however, that it should be dutiable as print paper under paragraph 396. The importers have appealed from the decision of the general appraisers, and that appeal is now in force. Meanwhile the Government is collecting under paragraph 402.

Mr. CLARK. Before Mr. Elliott begins, I want to ask the last witness a question. Do you ask to have this tariff remain as it is, or to raise it?

Mr. MARCUSE. We ask that the tariff on wrapping paper remain as it is, but that a classification be made for Kraft paper.

Mr. JOHN NORRIS. Mr. Chairman, may I feebly ask whether those of us who have been waiting here all day may not get some chance——

The CHAIRMAN. What is that?

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Mr. NORRIS. May I feebly ask that those of us who have been waiting here all day may get some chance to be heard?

The CHAIRMAN. Mr. Norris, you will be heard in due time, after this gentleman has finished. If Mr. Elliott were not heard now, I presume the newspapers that you represent would say we had cut off a man who wanted to speak for the reduction of the duty, or in opposition to raising it. He asks to speak, and he will be heard at this moment. Otherwise, if he had not volunteered, you would be speaking now.

Mr. NORRIS. I think this is about the third time he has spoken.

The CHAIRMAN. All of these gentlemen have been waiting all day equally with you. Proceed, Mr. Elliott.

FURTHER STATEMENT OF MR. R. S. ELLIOTT.

Mr. ELLIOTT. Mr. Chairman, I now want to present the following arguments why the present rate of duty, namely 25 per cent on wrapping papers which are imported under the style of a paper known as "Swedish Kraft," should not be changed.

First, the American has been taught by the Swede that it was possible to produce a superior paper with greater yardage from a given cord of spruce. This being true it would naturally help to save our forests. By yardage I mean that this Kraft paper being so strong can be used in a much lighter weight than regular manila wrapping paper. Thus the cost to the consumer is equalized and not as much timber is necessary to supply the wrapping requirements of the consumer. When the domestic manufacturers of manila paper began to see that the domestic user of wrapping paper demanded this Kraft paper they undertook to produce the same article with the result that to-day papers equal to the Swedish, both in price and quality, are made by domestic mills. One of the largest domestic mills is producing a superior grade of Kraft made from pulp imported from Canada, which, coming across the line, has to pay a duty to say nothing of the freight to the mill making this paper. But even under these conditions, that paper is sold in competition in New York with the best grades made in Sweden.

Mr. UNDERWOOD. Let me ask you a question about that. Do you know the volume of this wrapping-paper business in this country?

Mr. ELLIOTT. No; I do not.

Mr. UNDERWOOD. Do you know the amount of the importations?

Mr. ELLIOTT. Not in this Kraft paper; no. It has only grown up in the last three years.

Mr. UNDERWOOD. What effect would it have on the business if we adopted the suggestion of the last witness, and made a specific enumeration of the Kraft paper?

Mr. ELLIOTT. I could not hear his statement. Does he want to raise the duty?

Mr. UNDERWOOD. I could not understand myself, from what he stated, exactly what he wanted, and I thought that possibly you could throw some light on it.

Mr. ELLIOTT. I was so far back that I could not hear it.

Mr. DALZELL. I understood that he wanted to retain the duty as it is now, but with a new classification for Kraft paper.

Mr. UNDERWOOD. What effect would that have on the business?

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Mr. ELLIOTT. What would be the object of making a classification if it were not to raise the duty and bring it under some other classification where there is a higher duty?

The CHAIRMAN. You say that a new classification would raise the duty, as you understand it?

Mr. ELLIOTT. You asked me if it would?

The CHAIRMAN. Yes.

Mr. ELLIOTT. I do not see any other object, when they are making the paper, as I have stated they are.

Mr. UNDERWOOD. They are making paper of that kind?

Mr. ELLIOTT. Yes. It sells in New York City in competition with the Swedish.

The CHAIRMAN. We will now hear Mr. Norris, on pulp and print paper.

STATEMENT OF MR. JOHN NORRIS, CHAIRMAN OF COMMITTEE ON PAPER, AMERICAN NEWSPAPER PUBLISHERS' ASSOCIATION.

Mr. NORRIS. Mr. Chairman, just as an aside, and casually and incidentally and preliminarily, I want to call your attention to the fact that Mr. Marcuse, who preceded me—the gentleman who appealed for a new classification and a higher rate on wrapping papers—was the gentleman whose firm plead guilty June 19, 1908, in the United States court, as members of the Parks pool on fiber and manila, and his firm was fined $2,000. Instead of that stopping the operations of these manufacturers and paper makers in fixing prices and in regulating output, they are at it again. I submit here a report of the Western Fiber and Manila Association, which, under date of November 5, 1908, has just advanced the price of manilas $3 per ton as the result of combination. That is merely preliminary to the other proposition. I submit also a report of the previous week of the Paper Trade Journal, giving a statement of a meeting of bookmen to discuss the unsatisfactory condition of the trade.

These gentlemen come here, not on oath, and make statements. I seriously combat the accuracy of any statement they have made to the effect that there are no combinations, no agreements, no arrangements, to restrict production or to fix prices.

I will speak, practically, for all of the newspapers. There has been somewhat of an understanding that I shall open, and that then the representatives of the American Paper and Pulp Association will present their side; and I hope that I may be given an opportunity not to answer them, but where there are misstatements made, without going over the ground, to call the attention of the committee to them.

The CHAIRMAN. We will cross that bridge when we come to it. I am afraid it will be a good while from now before we get there. [Laughter.]

Mr. NORRIS. All right. In addition to myself, as representing the newspapers, there will be representatives of the four labor unions which are employed by newspapers, and which feel the effect of the increased price of paper.

In submitting the views of the American Newspaper Publishers' Association upon the paper schedule of the tariff, I will attempt to cover the proposition for free pulp and free paper in all its phases,

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including the deception of your committee and of Congress by the paper makers in 1896, the failure of the paper makers to give to labor any of the benefits of the protective tariff, the organization of paper combinations in restraint of trade, the destruction of our forests by them, and their gigantic speculations in woodlands. Newspapers have been made to bear undue burdens as a result of the advance in 1907 of $12 per ton in the price of paper. Approximately 1,200,000 tons of news-print paper are used in the United States annually, costing consumers in excess of $50,000,000 per annum. As a result of the unjustifiable advance of 1907, one paper, the Baltimore American, was taxed $60,000 per annum. Another paper, the Philadelphia Inquirer, was taxed $156,000 per annum. Preliminarily I call attention to the fact that because of a labor dispute between the International Paper Company and its employees, covering a period of three months, since August 1, 1908, the output of the market was reduced about 105,000 tons. This curtailment of production has been availed of by paper makers generally to mark up the price of news-print paper this week to $55 per ton, New York, or $20 per ton in excess of the price which prevailed when the Ways and Means Committee considered this schedule twelve years ago and $15 per ton in excess of the price which would prevail under normal conditions.

Mr. UNDERWOOD. Mr. Norris, if it will not bother you, will you state before you make your argument, so that we can follow it along the line of your suggestion, what suggestion you make to the committee as to our future action on this proposition? Will you state what you desire us to do?

Mr. NORRIS. Let me explain that in a summary of about twenty minutes' duration I substantially cover all of the ground, including that particular point——

The CHAIRMAN. What Mr. Underwood wants to know is what amendment you suggest to the bill.

Mr. UNDERWOOD. I want to know what suggestion you make.

Mr. NORRIS. Free pulp, free paper, and reciprocity with Canada for free pulp wood, free paper, and free pulp.

The CHAIRMAN. That answers the question.

Mr. HILL. Do you mean to have all paper free, or just news paper.

Mr. NORRIS. News-print paper is the particular matter for which I appear.

Mr. HILL. And that is all for which you make any suggestion?

Mr. NORRIS. That is all for which I make any suggestion; but it is coupled with wrapping paper and other kinds of paper, because these mills which make the wrapping paper, which make manila, are equipped to make news-print paper; and when they come together in pools so as to artificially stimulate their production, there is an inducement for them to keep out of the news-print paper market. I will make special reference to that later.

The CHAIRMAN. I suggest that Mr. Norris go on and read his statement.

Mr. NORRIS. Please note that the publisher—not the laborer, nor the paper maker—is asked to pay this bill for industrial warfare. We will show from its annual reports that the International Paper Company, with all of its antiquated outfit and its five subsidiary companies that sap its earnings, has made an actual profit of $8.79 per ton, or 29 per cent, upon all the paper it has turned out in ten

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years, and that its cost of production has been $30.52 per ton, or $1.51 per 100 pounds, and that its average price during the ten years which have elapsed since the passage of the Dingley bill has been $43.91 per ton, or $2.19 per 100 pounds delivered, an increase of $11.91 per ton over the price at which paper was sold when the Dingley bill was passed July 24, 1897.

Paper can be made cheaper at Millinocket, St. Croix, and Berlin than in Canada. Labor is paid less here than in Canada, and we hold that the protective principle provided for in the Republican platform does not apply to paper, because of this treatment of labor by paper makers, and because of this cheapness of cost of home production as compared with foreign production. We will show that the Dingley bill increased the duty on ground wood 45 per cent (p. 866) and on news-print paper 46 per cent (p. 1165), and that the outcome of the present policy has been to increase imports of pulp and to decrease the exports of paper. There has been a transformation in the paper situation. Instead of exporting paper we are importing pulp.

We will show that the import duty on news-print paper has not been productive of revenue and that it has furthered schemes of combination and criminal manipulation of the market. We are prepared to show that because of the import duty of $6 per ton, the price of news-print paper in the United States has for periods been raised to a figure which was $6 per ton above what it would have been under free conditions, and above what it should have been under conditions that assume respect for law. The paper-manufacturing business has been mismanaged, the burden of which mismanagement has fallen upon the publishers. We are embarrassed by the chairman's statement that the Government's figures and studies of the tariff are based on prices quoted by trade papers, which the chairman said on the floor of the House—referring specially to news-print paper prices—are "as accurate as accurate can be." We are prepared to show the utter worthlessness of such quotations, as well as the difficulty of establishing any fair standard of comparison, in determining the cost of production in the United States and abroad.

The CHAIRMAN. Mr. Norris, did not the chairman give the source of that information?

Mr. NORRIS. Sure——

The CHAIRMAN. Wait a moment. And did not Mr. North state that his source of information was from the trade journals, and did not the chairman state that at the time?

Mr. NORRIS. He did; but he also gave——

The CHAIRMAN. Then be fair, and state the whole thing.

Mr. NORRIS. But did he not also give it the authority of his position, and his office, and was it not stated on the floor of the House——

The CHAIRMAN. What he stated was that it was taken from the trade journals.

Mr. NORRIS. But Mr. Payne also said that these prices were "as accurate as accurate can be." Now, I do not desire to quarrel with the chairman. I simply want to say, as a matter of fact, that the figures were not accurate.

The CHAIRMAN. The chairman was making a speech. The gentleman from Pennsylvania sat at the next seat, and when he commenced to speak on this subject the gentleman from Pennsylvania handed him the letter of Mr. North, which the chairman had never seen

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before, and the chairman presented that statement to the House; and he stands by what he said in reference to it—that that is the information that he had upon the subject.

Mr. NORRIS. I do not assume——

The CHAIRMAN. And no one was deceived; much less yourself or Mr. Ritter.

Mr. NORRIS. On the contrary. Do I understand that the chairman now says, or now assumes, or now thinks that those figures are as accurate as accurate can be?

The CHAIRMAN. The statement of Mr. North was accurate for what it purported to be. If the trade journals did not get it right, that is another instance of the very small number of cases in which the newspapers of the country make mistakes about statements of fact. [Laughter.]

Mr. NORRIS. But it is also an instance of the basis and character of information upon which Congress legislates without due inquiry as to the source or accuracy of information upon which it acts.

The CHAIRMAN. Congress was not acting at that time. It was simply debating upon a statement; but perhaps you had better go on.

Mr. NORRIS. Yes, sir.

We will point out the menace that hangs over the paper business by reason of the attitude of Canada. The increasing use of water power for electrical purposes as well as the threat of prohibition of the export of wood have tended to stop the building in the United States of new paper mills to meet the increasing consumption (p. 907). We will indicate how every material American interest may be promoted by a reciprocity arrangement with Canada and with Newfoundland, providing for free pulp wood, free pulp, and free paper.

We invoke your scrutiny of State Department records which would enable you to obtain an accurate list of the dates of meetings of American and Canadian manufacturers at the Place Viger Hotel, Montreal, and the names of the participants, for purposes which are obvious; also the membership of a combination of interests that center at Three Rivers, Canada, including the International Paper Company; also calling attention to a contract of 10,000 tons of Canadian news-print paper made at $35 per ton for one year, beginning February 1, 1908, by the Belgo-Canadian Company, of Shawinigan Falls, with S. A. Cook, of Neenah, Wis., president of the Alexandria Pulp and Paper Company, of Indiana, which would have helped to relieve the shortage in the American market, but which was driven out of the country and delivered to Lloyd, of London and elsewhere, by threats of the New York paper men to destroy the trade of the Canadian mill in the event of its delivery in the United States. Summon Mr. Cook and ascertain from him how much he has paid toward a settlement of that transaction which contributed to maintain an artificial price for paper, and to tax every American publisher whose expiring contract was renewed. Also, how the Canadian government made a gift of 400 square miles to the Berlin Mills Company as an inducement for the building of a paper mill at La Tuque, Canada.

We are prepared to show that in 1907, at a time when the demand was large and production was overlapping consumption, that Mr. John A. Davis bought up over 20,000 tons of news-print paper and starved the market.

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We will show that in 1907, when its total actual cost of making paper, including labor, had increased only 64 cents per ton, the International Paper Company, without jurisdiction, advanced prices $10 and $12 per ton.

We will show that the International Paper Company is producing 300 tons per day less of news-print paper than was produced by the mills which it consolidated, and that it has either sold, leased, stopped, or diverted to other uses more than 46 of the 111 machines which it originally acquired.

The paper makers lacked in appreciation of their obligations to Congress, because it is fair to assume that an industry which is an object of protection is bound to meet the wants of the consumers. The United States Steel Corporation has recognized this obligation by an expenditure of several hundred million dollars within a few years for new construction, but the International Paper Company, having decreased its daily output and restricted production, has proved itself unworthy of your consideration.

We are prepared to show the methods of high finance which capitalized at excessive figures a collection of antiquated mills located on exhausted water courses tributary to denuded forests. The International Paper Company is capitalized on a basis which is three times that of the cost of the St. Regis plant. It represents $35,000,000 of watered capital which its consumers must carry. On a capital of $69,000,000 it does a business of $20,000,000 per annum and requiring nearly three and one-half years to turn over its capital in manufacturing.

We will show you the depletion of our spruce supply and the absolute inability of the United States to provide for the needs of the paper industries. We will show you the impossibility of meeting this situation by reforestization because of the time required to mature spruce forests, and because of forest fires, and because of taxes on standing timber.

We will show you that the International Paper Company and other beneficiaries of the tariff on pulp and paper have involved themselves in gigantic speculations in woodlands in Canada whereby money that should have been devoted to the expansion and betterment of American mills has been diverted to Canadian woodlands which can not be made available for use by present owners during the next thirty years. We will give details of the acquirement of over 12,000 square miles of tracts in the Province of Quebec alone.

The newspapers represented in the American Newspaper Publishers' Association are divided about equally between the two political parties. They represent many views on many subjects. They are substantially unanimous, however, in asking that the duty on pulp and paper be removed. The canvass made by the Mann committee shows that 715 newspapers replying to its inquiry, 651 favored the removal of tariff and 64 opposed, and that the Republican papers favoring removal outnumbered the Democratic papers which advocated removal.

Unlike all other subjects of tariff taxation, users of news-print paper can not pass along the burden to the consumer. The price of a newspaper, like the price of a postage stamp, is fixed. A publisher can not raise and lower his price when the price of news-print paper advances or falls. Neither is it possible to shift the burden to advertisers because of the methods of the paper makers who make long-

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time contracts with some newspapers at low prices, and refuse to make the same contracts with other papers. They also make contracts that expire at varying dates. As a result of this overlapping of contracts, it would be rarely, if ever, possible to shift the burden of increased cost to advertisers. In a city where a Hearst paper was paying $37.60 per ton to the International Paper Company under a ten-year contract, do you think that another publication subjected to a $50 per ton charge by the same company, could afford to raise its price or increase its advertising rates without the Hearst cooperation? Could it expect to obtain cooperation under such conditions? The proposition that newspapers increase their price as was urged by the general manager of the International Paper Company (p. 734) would mean this: That every purchaser would pay 1 cent per day additional, or $3 per annum for approximately 20,000,000 copies per day, or $60,000,000 in all. Thus it is proposed that the readers of newspapers should pay a tax of $60,000,000 in order that a group of paper makers might take four or five million dollars from the pockets of the people through the publishers.

Newspapers are entitled to consideration from you upon that score even if you ignore the extraordinary function they perform in disseminating intelligence, in promoting knowledge, and in facilitating the work of government. Those citizens are the best citizens who are in complete touch with the work of administration and the furtherance of the newspaper's mission is worthy of your serious effort. An increase in the consumption of paper is due to the increasing intelligence of the people.

According to the best available information, it is calculated that all the paper mills have capacity to turn out about 14,885 tons per day, or 4,546,920 tons per annum, as follows:

	Tons per day.
News	4,200
Book	1,900
Boards	3,300
Wrapping (manila, fiber and straw)	2,850
Writing	1,400
Roofing and sheathing	610
Tissue	290
Hanging	275
Blotting	60
Total	14,885

Seven concerns practically control the output of 71 mills engaged in the manufacture of news-print paper. Their daily capacity may be computed at 4,342 tons per day, as follows:

	Tons per day.
International Paper Company	1,416
Great Northern	450
Berlin Mills	225
W. H. Parsons & Co	170
H. G. Craig & Co., selling agents	500
Western interests formerly associated with General Paper Company	729
3 mills in Michigan and New York	120
Total	3,610
Pacific coast (2 concerns)	280
Mills not primarily devoted to news	301
Scattered in 7 States	365
Total	4,556

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In any contest with Canada, the publishers who pay for the paper must ultimately bear the burden of that struggle, not the paper makers who have exhausted the domestic supply of pulp wood. These paper makers have gone to Canada where there are from 200,000,000 to 550,000,000 acres of timber, largely spruce, and they have invested many millions in Canadian woodlands. The International Paper Company owns approximately four and one-half million acres, or nearly 7,000 square miles of Canadian and American tracts. The American paper makers are importing free of duty about 1,000,000 cords of pulp wood per annum. I am told that 23 important news-print paper mills in the United States get substantially all of their wood from Canada. The Ontario authorities, to block the scheme of contervailing duty which was incorporated in the Dingley bill, have prohibited the export of pulp wood cut from crown lands, and in that way they have deprived all the western mills of a cheap and ample supply of raw material. In the Province of Quebec, a tax of 65 cents per cord is imposed on all pulp wood cut from crown lands with a rebate of 40 cents if the wood is put into manufactured form in Quebec. Our courts have decided that that rebate arrangement constituted an export tax of 25 cents per cord on pulp wood and you have therefore imposed a countervailing duty under the provisions of the Dingley law upon all paper manufactured from wood cut on crown lands in the Province of Quebec. The burden of proving that it was not cut from crown lands is thrust upon the importer.

The Canadian paper makers and the Canadian authorities say they are annoyed by the attitude of the American Government. The Canadian paper makers are clamoring for the prohibition of the export of pulp wood from the Province of Quebec, as from the Province of Ontario. They have formally submitted their request to the Dominion government, and the pressure from them upon it is very strong. Serious consequences to American paper makers are imminent. Every American paper maker who testified before the Mann committee agreed that the probibition of pulp-wood export by Canada would bring disaster to the trade. It would close many mills, and would force the manufacturer into Canada. The president of the American Paper and Pulp Association, David S. Cowles, on September 13, 1907, sent to all editors of American newspapers a circular letter calling attention to the Canadian threats and bewailing the possibilities of what he regarded as confiscation of American investments in Canada in the event of the adoption of the prohibitory programme. That document was printed in the records of the Mann committee, although an officer of the International Paper Company asked that committee to suppress its publication. (P. 2014.) That gentleman, Chester W. Lyman, who is assistant to the president of the International Paper Company, and who is an agent of all the paper makers, took an amazing position in another letter sent on the day of his request for suppression. (P. 2013.) He said there was an adequate supply of wood left in the United States and that there were undeveloped water powers in the United States sufficient for paper making purposes. He made this declaration notwithstanding the annual importation of nearly a million cords of pulp wood from Canada by the paper makers, and the investment of more than $12,000,000 by them in Canadian woodlands. In other communications this representative argued that the paper makers were not primarily responsible for the

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rapid destruction of our forests; that paper makers took only 3 or 4 per cent of the total slaughter, and that the wicked lumbermen and the folks who started the forest fires were responsible for whatever damage had been done to the country's resources. Therefore, it would be inferred, it was not necessary for the American paper maker to go to Canada for his wood supply, and upon that proposition we have diametrically opposite views from the paper-mill representatives.

The Canadian government is awaiting your action before deciding upon its course. If you attempt to appropriate its pulp wood without some concessions to the manufacturers of that pulp wood, then you invite a trade war. Here, now, you have a distinct menace to an important industry—a meance that would carry serious consequences to the users of paper, causing violent disturbances in paper prices, and a paper famine You would put a premium upon the destruction of more of our forests with all the baleful climatic conditions that follow such shortsighted methods. The reciprocal relations of the two countries are so extended and complex that the interests which both possess in mutual trade and the necessity imposed upon each side for amiable intercourse should induce everyone to approach this matter in a spirit of fairness and neighborly comity. Are we to tangle our railroad interchanges, our trade of two hundred and fifty millions per annum with that neighbor, in order that we may more quickly slaughter so much of our forests as remain? Are we to start upon a retaliation and industrial warfare to insure another lease of opportunity for those groups of lawbreakers who have done violence to every sound principle of trade in their efforts to crush competition, to restrict production, and to impose upon the people a monopoly of an article that is essential to the dissemination of knowledge? I am not willing to believe that an American Congress will give heed to any such proposition. On the contrary, I believe that this committee would approve of any plan by which a solution of this situation would be reached. In the recent political campaign in Canada it was announced that the government would refer the proposition for an export duty on pulp wood to a commission for adjustment. Why not utilize the information and studies of your Select Committee on Paper and Pulp which has been digging into this matter for six months and arrange through the State Department for informal conferences? I am confident that, as a result of such action, you will recommend the plan outlined in H. R. 22237, introduced by Mr. Mann upon request, providing for reciprocity with Canada. That bill was prepared in the State Department and was passed upon in the Treasury Department. Its language is that of section 3 of the Dingley bill, with the substitution of pulp and paper for argols, etc. It follows the recommendation of President Roosevelt to Congress, and it adopts the safeguards and precautions suggested by the report of the majority of the Select Committee on Pulp and Paper Investigation, whereby American paper makers will be insured protection from hostile action by Canada in the event of the removal of any duty by you. In short, that Canada will not attempt to impose any export duty on pulp and paper and pulp wood in the event of the abolition of our import duty on pulp and paper.

The CHAIRMAN. Is that the bill introduced by Mr. Mann, of Illinois, by request?

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Mr. NORRIS. Yes, sir.

The CHAIRMAN. By request?

Mr. NORRIS. Yes, sir.

The CHAIRMAN. I could draw a good deal better bill than that.

Mr. NORRIS. You will have to reframe the Dingley bill, then, because it is absolutely the language of section 3 of the Dingley bill, which I think you had some part in, and for which you are measureably responsible, certainly as to its phraseology.

The CHAIRMAN. I could make a bill that would insure much more protection against Canada than any provision of that kind.

Mr. NORRIS. But that means a trade war, and I doubt if even the chairman of this committee wants to invite or precipitate anything of that sort. I am quite sure he has no such disposition.

The CHAIRMAN. As to do what?

Mr. NORRIS. As to invite or precipitate a trade war with Canada.

The CHAIRMAN. Certainly not.

Mr. NORRIS. Certainly not.

The CHAIRMAN. We are agreed on that entirely. I do not think there is any danger of that.

Mr. NORRIS. Well, we must carry the load, if there is danger. With your ideas about it, if you should so decide, we must bear the consequences.

The CHAIRMAN. You do not know what my ideas are about it.

Mr. NORRIS. I have no doubt that before we get through to-night you will be for free pulp and free paper.

The CHAIRMAN. And you will be disappointed, as you usually are. [Laughter.]

Mr. UNDERWOOD. The suggestion was made to-day that when this bill comes out of the committee it will probably come out in the shape of a maximum and minimum tariff bill. What have you to say on that subject, in the light of that statement?

Mr. NORRIS. Will you permit me first to take up the division of "labor," and of "wood and forestry," and then of the tariff, and then of combinations, so that I may cover the points which I understand were deep in the chairman's mind, that labor must be protected and that the cost of production must be insured?

Mr. UNDERWOOD. Certainly.

LABOR.

Mr. NORRIS. Simple arithmetic will determine the question whether or not the paper makers have given to labor any share of your tariff benefaction. In New York State, which is the largest paper-making State in the Union, the state bureau of labor (p. 359) gathered reports in 1906 from every branch of organized male labor in that State, and the figures showed that 2,786 organized workers in "paper and paper goods" received less than any other class of organized labor (exhibit). Paper workers received an average of $10.94 per week, or $1.82 per day, for skilled and unskilled labor combined. The proportion of skilled labor receiving $3 per day was less than 9 per cent of the total number employed.

In the State of Massachusetts in the year 1905 (see p. 371) 13,364 persons engaged in the paper industry received an average of $9.06

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per week, or $1.51 per day, and in the year 1906 they received an average of $1.53 per day.

In the State of Wisconsin (p. 703) 44 establishments, employing 5,384 persons, reported that the average yearly wage was $462.01, equaling $1.48 per day, and for 1907 the pay was less than in any one of the three years preceding.

The Bulletin of the Bureau of Labor at Washington, for July, 1907, on page 3 (pp. 372 and 719 of Hearings) shows that of 41 industries employing 334,107 persons whose earnings were reported the only industry in which the pay of labor had been reduced in 1906, as compared with 1904 and 1905, was paper. The hours of labor in that industry were also increased in that year.

The census report for 1905 shows (p. 372) that 65,694 persons employed in the paper trade received an average of $9.32 per week, or $1.55 per day.

The paper makers based their increase in price of news-print paper to $50 per ton in 1907, upon the representation that the cost of labor had been increased 50 per cent by reason of the change of tours from twelve hours per day to eight hours (p. 733). It now appears by the records of the American Paper and Pulp Association (p. 1743) that only 29 mills had changed to the three-tour eight-hour system and that 215 had continued on the twelve-hour basis.

The data submitted by various paper companies throws an interesting side light on the relative pay of labor. At the Hudson River mill of the International Paper Company t' e cost of labor per ton of paper produced was $1.13 per ton less under the eight-hour system than under the twelve-hour system, and that fact taken in conjunction with others found in the reports of the paper companies would confirm the belief that better paid labor is the cheaper labor in the long run.

The Remington-Martin Company figures of labor cost for the year 1907, while approximating those of the International Paper Company for the same year were less than in the year 1906, when the twelve-hour system prevailed. The total cost of labor in all of the mills of the International Paper Company in the year 1907 under the 3-tour system increased only 34 cents per ton over the cost of 1903, and only 66 cents per ton, or 8 per cent (not 50), over the cost of 1905, when the twelve-hour system prevailed (p. 1977).

The cost sheets submitted by various paper companies to the Mann committee for the year 1907 showed extraordinary discrepancies, as follows:

	Labor cost per ton.
Gould (New York) mill, 12-hour system	$8. 53
Cloquet mill (Minnesota), 12-hour system	11. 57
Park Falls (Wisconsin), 12-hour system	10. 56
Remington-Martin (New York), 8-hour system	8. 53
International Paper Company (New York and New England), 8-hour system	8. 52

It would appear from these figures that the western paper mills could not make paper as cheaply as eastern mills, and the eastern mills, working on the eight-hour system could show a saving of from $2 to $3 per ton in the comparisons. It is possible that the excessive labor cost of the western paper mills is due to the fact that they employ boys to operate their paper machines. The Mann committee in

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its visits to over 19 paper mills in Wisconsin and Minnesota found very few grown men. It saw many 15-year-old boys who were working thirteen hours for six nights. At one mill, Combined Locks (p. 2103), the night force worked fourteen hours. Two 15-year-old boys at one mill in Neenah, Wis., were working as members of the crew on a paper machine at the rate of 8½ cents and 10 cents an hour, respectively. Workers in George A. Whiting's mill at that place received pay varying from 90 cents to $1.10 per day. Women, who were sorting rags, were paid $4.50 per week by men who pose as leading citizens. Paper-mill workers in the Fox River Valley were paid 14½ cents per hour for sixty-five hours per week, or $9.52 per week.

Mr. Cowles, the president of the American Paper and Pulp Association, had declared to Congress that the cost of labor in the paper mills had increased from 30 to 70 per cent in ten years, and that a large part of this increase had taken place in past two years; but when the labor cost figures of his own mill were dissected it appeared that the labor cost was 12.21 cents per 100 pounds in December, 1906, under the twelve-hour system, and 12.68 cents in December, 1907, under the eight-hour system, an increase of less than 4 per cent (not 30 nor 70) in his mill. Comparative tables printed in the Paper Mill of July 6, 1907, showing the operations of a typical paper mill in the West, disclosed the fact that its labor cost had increased less than 2 per cent in ten years. There were numerous factors that contributed to keep down the cost of producing a ton of paper. The width of machines had increased in ten years from 100 and 120 to 150 and 160 inches; their speed had increased from 350 and 400 feet to 550 and 600 feet. The daily product of a paper machine had been increased from 20 tons to 45 tons. The labor mill workers contend, and with some justification, that the pulp mill will grind more pulp when the men work eight hours than when they work twelve hours.

Upon the question of the comparative pay of paper-mill labor in the United States and Canada, I refer you to the statement of George Chahoon, jr., manager of the Laurentide Paper Company, of Canada (p. 805), and of Mr. Carl Riordon, of the Riordon Paper Mills, of Merriton and Hawkesbury, Ontario (p. 805), and of Mr. F. B. Lynch, of Minneapolis, who testified in October, and of Mr. Cowles, president of the American Paper and Pulp Association (p. 908), all of whom said that the Canadian mills pay as high and higher wages than are paid in the United States. Practically all skilled labor in these mills comes from the United States, and the inducement of higher pay must be made to attract them there.

In comparing relative pay with Canada, Mr. Cowles said: "If anything, I should say that labor is higher in Canada than it is in the United States."

The CHAIRMAN. Do you mean skilled labor?

Mr. COWLES. I mean skilled labor and cheap labor both. That was not formerly so, but it is so to-day. That is my own experience and my own observation.

Consul Worman, of Three Rivers (p. 1991), reported to the State Department that "labor in the Canadian mills is as high as in the United States, yea, oftentimes even higher. The skilled mechanics are Americans who receive higher wages as an inducement to leave their home and country."

More than 100,000 newspaper employees have sent appeals to Congress and the President asking for the abolition of the duty on pulp

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and paper. Upon what theory can you claim to give protection and benefactions to paper-mill employers who do not treat their labor properly, while you refuse it to newspaper publishers who pay to their employees an average wage that is about three times the amount paid by the paper makers? The entire amount paid to paper-mill labor producing news-print paper will not exceed $9,000,000 per annum. Yet the paper makers who profess such anxiety for their labor ask you to add to the losses of compositors, pressmen, and stereotypers, and photo-engravers, whose enforced idleness in the last year, partially because of the high price of paper and its reduced consumption, will more than equal the total pay of these paper-mill employees.

Instead of giving to labor the rewards which protection was designed to confer, the paper makers have treated their labor worse than any other industry has done. Since the 1st of August, 1908, a protracted struggle was carried on between the International Paper Company and its employees over a question of a reduction of 5 per cent in wages—the contest entailing a loss in labor and other items exceeding $1,000,000, all of which must ultimately be borne by the newspaper publishers, under the provisions of your tariff schedule.

WOOD.

I now approach the subject of wood and forestry.

In presenting estimates of standing timber in the United States, I do so with misgivings of the accuracy of every government estimate in that direction. Two recent experiences of the worthlessness of such statements make me incredulous of all of them. Subject to this reservation, I state that spruce constitutes 70 per cent of the wood used in paper making. Government reports of 1906 declare that the State of Maine supplied over one-third of the spruce used, and more than double the quantity furnished by its closest competitor, the State of Washington. The spruce of New York State has fallen off recently, and that of New Hampshire and Vermont has decreased about one-half since 1899. These four States in the Northeast furnished 60 per cent of the timber, Washington and Oregon 20 per cent, the Virginias 10 per cent, and the rest of the country 10 per cent. The State of Minnesota, about whose supply of spruce much has been said, supplied only one-sixtieth of the total cut. About three-fifths as much spruce was used for pulp as for lumber in the United States in 1906. Paper makers cut over 1,830 square miles every year to provide wood for pulp and paper mills. We import from Canada for the same purpose the timber from 338 square miles, so that our paper mills strip altogether 2,168 square miles every year. Of this stripping, approximately one-third, or 700 square miles, is for mechanical ground wood and two-thirds, or 1,400 square miles, is for chemical pulp.

New York State consumes over a million and a quarter cords of wood in the manufacture of pulp, or more than twice as much as Maine, which ranks next. The amount of pulp wood used in the United States in the calendar year 1907, reported by 250 mills, was approximately 4,000,000 cords. (See p. 1428 of Hearings.) Forty-five per cent of this quantity was domestic spruce and 23 per cent spruce imported from Canada. Fifteen per cent was hemlock, 9 per cent poplar, and 8 per cent was said to be made up of pine, cottonwood, balsom, and other woods.

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The Census Bureau has pointed out (Bulletin 77) that the inroad into the remaining supply of spruce is rapid, and that the concentration of much of the stand into extensive holdings of pulp manufacturers explains a substantial rise in the cost of lumber stumpage. I hesitate to give estimates of standing spruce, because estimates and conditions vary widely.

The fact that the principal users of spruce have bought over 12,000 square miles of timber tracts in the Province of Quebec alone would indicate their fear of a shortage, though evidences of a gigantic speculation in woodlands are numerous and strong. The International Paper Company, with approximately 7,000 square miles, or four and a half million acres, of timber lands under its control turns out about 1,600 tons of paper per day. The vice-president of the Great Northern Paper Company has laid it down as an accepted formula of the trade that 1,000 acres of spruce will produce perpetually enough wood to turn out one ton of paper per day. Forester Pinchot (see p. 1370 of Hearings) was inclined to look upon this basis of computation as correct. Applying the formula to the International Paper Company's holdings, it would appear that that company has acquired about three times the area necessary for a perpetual supply on the basis of its present production. If the company should cut its pulp-wood supply from its own lands, there might be some justification for a contention that that immense acreage was necessary to safeguard its future supply. But it cuts from its own lands only 25 per cent of the wood it uses (see p. 1055 of Hearings), buying 75 per cent upon the market. It therefore cuts only one-twelfth of that which its acreage would permit, and it is obviously engaged in the business of speculating in woodlands instead of making paper. A confirmation of this view of its methods is shown in the statement it submitted to the Mann committee (see p. 1029 of Hearings), wherein it claimed that it had woodlands worth $13,493,315, though its annual statement for June 30, 1908, placed the book value, and assumedly the actual cost value, of these woodlands at $3,697,560, showing an estimated profit of nearly ten million dollars on that speculation. Every purchaser of paper from that company is forced to pay approximately 2½ cents per 100 pounds as a contribution toward the carrying charges of that venture. Incidentally, I may point out that in the valuation of its properties (see p. 1029 of Hearings) it claimed that it had 194,592 horsepower of undeveloped water powers which it valued at $9,729,600. Here is another venture to which paper users must contribute for carrying purposes, these undeveloped water powers and these vast timber tracts having been acquired to stop others from competing with it in the manufacture of paper.

Mr. HILL. May I ask if you refer to the 35,000,000 of which you spoke a while ago as undeveloped water power?

Mr. NORRIS. Oh, no—no! That has been worked to the limit.

The worst phase of its business is the use of adjunct companies to hide its actual operations. It buys much of its wood from the St. Maurice Lumber Company, in Canada, which it owns and controls. It has three or four adjunct companies in the United States and Canada which completely baffle an audit of its wood accounts. These adjunct companies are: St. Maurice Lumber Company, Champlain Realty

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Company, Michigan Pulp Wood Company, American Realty Company, and Miramichi Lumber Company.

In shipping pulp wood from Canada it has not had any incentive to undervalue the export because there was no duty upon it. For years the International Paper Company has been certifying to the Canadian government that the pulp wood shipped by it from Canada to the United States was valued at less than $5 per cord. The values fixed by paper makers upon all the pulp wood sent out from Canada have been as follows:

	Per cord.
1905	$4.38
1906	4.31
1907	4.37

These figures, which show an actual reduction in value in 1907 as compared with 1905, throw doubt and suspicion upon that company's figures of cost and profit, and suggest an inquiry into the relations of the subsidiary company to the parent concern. Indeed, they may affect its cost figures at some mills to the extent of $3 per ton, and disprove the claim of increased cost of wood. I am unable to fathom the purposes of a management which pays high prices to outsiders for its wood supply while refusing to cut timber from its own cheap lands, which are inventoried at less than $1.70 per acre. Neither can I understand the craze for woodlands which it developed in the year 1907, because (see p. 488 of Hearings) in fourteen months prior to January 1, 1908, it acquired 2,000 square miles of additional acreage. Altogether, the International Paper Company had cut 6,418,512 cords from timber lands in Canada to January 1, 1908.

In the State of New York the International Paper Company has 400 square miles (see p. 1124 of Hearings) of spruce, of which 100 square miles is virgin timber. In Vermont it has 121 square miles (see p. 1130 of Hearings), and in New Hampshire 200 square miles, of which 80 square miles is virgin timber. For some extraordinary and unexplained reason the International Paper Company is allowing that virgin timber to remain uncut. A virgin forest never grows. Every dictate of good forestry would suggest the propriety of cutting out the mature timber and thereby gaining 4 or 5 per cent per annum from the growth of that which is allowed to remain. The policy of the International Paper Company in these matters is beyond explanation. Certainly, the users of paper are made to suffer by reason of the withdrawal of these vast areas from the market and the inevitable increase in the cost of stumpage. The officers of the paper company comfort themselves with the reflection that lands which were reported to be worth $10 per acre ten years ago are now worth $27.50 to $30 per acre (see p. 1131 of Hearings), but those valuations are purely fanciful and are the results of the artificial stimulation which pulp manufacturers have given to values. Eight or ten paper makers own over 1,140 square miles of spruce forests in the Adirondacks.

The International Paper Company has 400 square miles; Finch, Pruyn & Co. (affiliated with the International Paper Company), 220; Gould Paper Company, 170; St. Regis Paper Company, 100; Racquette River Company, 140; Schroon River Paper Company, 16; J. & J. Rogers Paper Company, 47; Dexter Sulphite Company, 47; hunting preserves for individuals, 1,500; New York State Forest Reserve, 2,700; a total of 4,340.

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It is obvious that the prohibition of the export of pulp wood from Canada would mean the prompt destruction, not of 2 or 3 per cent of our forests, as paper makers would have us believe, but of 25 per cent, or 1,100 square miles, of the Adirondacks.

Mr. Pinchot estimates (see p. 1357 of Hearings) that the available supply of pulp-wood timber in the United States will last as follows: New York, eight and one-half years; Pennsylvania, nine years; Minnesota, nine years; Vermont, eleven years; New Hampshire, twenty-five years; Maine, twenty-eight and one-half years.

I am not authorized to say what the Mann committee found when it undertook to ascertain the possibilities of reforestization. I know it went to the West, where the supply from Ontario had already been stopped and where sawmills had been abandoned because owners found the Ontario law made relocation necessary on the north side of the Georgian Bay. Practically all spruce in Wisconsin has been cut out. In Minnesota the spruce was found to be exceedingly small in size and requiring from one hundred to one hundred and twenty-five years to reach maturity and a diameter of 10 inches, whereas in the State of Maine the pulp men say they do not cut anything less than 14 inches. A visit to paper mills in Wisconsin and Minnesota disclosed a ridiculous aspect to their pulp supply. In many cases they are adjuncts of lumbering operations, as shown by Mr. Weyerhaeuser's investment at Cloquet and the Walker-Nelson investment at Little Falls. Disks cut from pulp wood in Minnesota mills showed that the 6-inch pulp wood counted 65 rings. Much of the wood was less than that diameter, and Mr. Mann brought back from Cloquet a specimen piece of pulp wood no larger than a baseball bat, which had been prepared for the pulp grinder. To reach bodies of spruce that would average 10 inches the committee passed through miles upon miles of burned forests, some burned in the spring of 1908, some in the fall of 1907, and some in the spring of 1907. It was admitted by the lumber cruisers who accompanied the committee that the fire in the spring of 1907 had been started by the lumbermen to burn up their slashings and had become too much for them.

When Mr. Weyerhæuser, of St. Paul, the largest lumber operator in the country, was asked about the possibilities of reforestization, he said that it was impossible for individuals because of the constantly recurring forest fires and because of the time required to mature the trees, and because of the taxes on standing timber which would eat up the principal before the new growth could reach maturity.

Forester Pinchot submitted to the Mann committee tables based on actual measurements of timber in different parts of the United States to establish the fact that from twenty-five to forty years must elapse before a second crop of spruce timber could be obtained, and that period was dependent upon the observance of forestry conditions and a restriction of cutting to 10 inches minimum. To obtain spruce from seeds planted in the forests would require between seventy-five and one hundred years. Mr. Pinchot stated that the cutting of pulp wood in the United States was destructive rather than conservative, because large and small timber is taken and little is left for a future crop. Testimony given to the Mann committee showed that in the West lumbermen cut everything clean, leaving nothing to grow for the second crop. Many States are putting a premium upon the destruction of their forests by taxing the standing timber. In

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Montana, it was stated the Government had adopted regulations which promoted this butchery. It will be necessary to move paper mills across the border or to the Pacific coast where there are supplies of spruce, if policies advocated by paper men inviting the prohibition of pulp wood from Canada are adopted.

In estimating the Canadian supply upon admittedly indefinite data of the two countries, Mr. Pinchot calculated that Canada had from two to three times the amount of spruce pulp wood that we have in this country (p. 1357). Canadian pulp-wood estimates vary. Broadly speaking, it has been claimed that there are spruce forests extending from Cape Hamilton, in Labrador, to the Yukon, and from the St. Lawrence north to Hudson Bay; that if the United States did not cut another stick of pulp wood for 200 years, and the Canadian trees should stop growing and remain in their present condition, there would be enough pulp wood available to keep us going for more than 200 years. Dr. Robert Bell, of the geological survey of Canada, says the forest areas of Canada measure 2,600,000 square miles, of which half are in pulp wood. This area computed on the basis of four cords of pulp wood to an acre would yield six and one-half billion cords, which would be enough to last the United States for 1,500 years on the basis of present consumption.

R. H. Campbell, superintendent of forestry of the Dominion government, calculated the forest area of the Dominion at 840,000 square miles, divided as follows:

	Acres.
British Columbia	182,000,000
Manitoba, Saskatchewan, Alberta, and unorganized territories	180,000,000
Ontario	40,000,000
Quebec	120,000,000
New Brunswick	7,500,000
Nova Scotia	5,000,000

Consul Worman, of Three Rivers, said there were 745,000,000 cords of pulp wood in the Province of Quebec alone. Americans were the first to organize milling companies to build sawmills in that consular district. Their operations have continued to this day, and with three exceptions, the lumber industry of Three Rivers may be said to be in the hands of Americans or controlled by American capital. Besides the mills in Three Rivers, there are ten or more large mills along the north and south shores, many of which are controlled by American capital, and exporting their products to the United States principally. American paper companies own more than 12,000 square miles in the Province of Quebec and in the list may be included the following.

	Square miles.
International Paper Company (in one of four land offices)	2,597
Berlin Mills	2,462
Union Bag and Paper Company	2,200
W. & M. J. Clarke, of New York	762
Saguenay Lumber Company	407
Bayless Pulp and Paper Company	475

In addition to timber holdings, Americans are interested in water powers on the Miramichi, Jacques Cartier, and St. Maurice rivers.

Consul Smith, of Victoria, says American syndicates seem to be successful in securing the bulk of the standing timber in British

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Columbia in spite of the keen rivalry of eastern Canadians. He said: "It is noteworthy that most of the large investments by Americans in British Columbia timber lands have been made by wealthy lumber men who now own or have made their money in large manufacturing enterprises in the Eastern and Middle States. They have literally poured their money into British Columbia, because, as several have declared to the writer, they regard the timber lands in this Province as the last that can be secured at nominal rates on this continent. As Wisconsin and Michigan forests were forty years ago so are the timber lands of British Columbia to-day." There is an item in the Daily Consular and Trade Reports, issued by the Bureau of Manufactures, for Monday, September 9, 1907, headed "Lumber in British Columbia," which seems to me incredible, because of the vast area to which it refers. It states on the authority of Consul L. E. Dudley, of Vancouver, British Columbia, that "a St. Paul, Minn., company (presumably Weyerhaeuser) purchased 261,000 square miles of timber lands, partly on Vancouver Island, the remainder upon the mainland, paying about $5,000,000 for the same, and proposes building six large sawmills at once. One American is said to have realized more than $1,000,000 profit upon his holdings acquired in the last few years. The provincial lands are not sold, and all logs cut upon such lands must be manufactured within the Province. The lands now changing hands by sale and purchase came into private hands before the enactment of the law now in force."

Consul Shott, of the Sault Ste. Marie district, reported that nine of eleven large sawmills in his district were owned by Americans and that fully 85 per cent of all the forest product of that district was manufactured by Americans.

At the annual convention of the Canadian Manufacturers' Association held in September, its president, Hon. J. D. Rolland, affirmed the accuracy of the estimates of the Dominion superintendent of forestry and said the total was enough to keep Canadian mills going three hundred and eighty-one years. He said that if the United States were compelled to build mills in Canada or to buy paper there, it would represent over $500,000,000 additional capital in Canada. At that meeting the following resolution was adopted by the association:

The pulp and paper section of the Canadian Manufacturers' Association beg to report that at the various meetings of this section held since last autumn the members have been unanimous in the opinion that the government of Canada be requested to preserve the forests and conserve the pulp wood of this country by prohibiting the exportation from Canada of pulp wood, and they ask the earnest assistance of the asso-tion in their behalf.

The data here given covering comparisons of timber supply and the menace to American interests should impel the American Congress, solely upon considerations of enlightened self-interest, to arrange promptly with Canada for terms that would be mutually advantageous.

I now come to the section devoted to the tariff.

TARIFF.

The paper makers and Congress have publicly declared that the Dingley law did not increase the duty on paper. I propose to show that the duty on paper was increased in 1897, the date of the passage of the Dingley bill, from $4.11 per ton on a basis of 15 per cent ad

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valorem, to $6 per ton specific, an increase of $1.89 per ton, or 46 per cent, and that the duty in the year 1907 would have been $5.40 on the ad valorem basis if the previous law had prevailed, an increase of 54 cents per ton, or 12 per cent. Also that the duty on mechanically ground wood was increased from an ad valorem basis of 10 per cent, or $1.15 per ton, to a specific duty of $1.67 per ton, or 45 per cent increase.

Unbleached pulp was increased from 10 per cent ad valorem to $3.33 per ton specific; bleached pulp was changed from 10 per cent ad valorem to $5 specific.

The paper makers had failed to point out to you that the duty was based, not upon the price of the paper delivered at destination, but upon the selling price at point of shipment. When Mr. William A. Russell appeared before your committee on December 31, 1896, the price of news-print paper was $35 per ton delivered in New York, or $30.40 per ton f. o. b. mill, which at 15 per cent ad valorem would then have fixed a duty of $4.56 per ton. The paper makers then asked you to raise it to a specific duty of $6 per ton.

I will repeat that for the benefit of the Chairman, merely because it may recall a personal experience. When Mr. William A. Russell appeared before your committee on December 31, 1896, the price of news-print paper was $35 per ton delivered in New York, or $30.40 per ton f. o. b. mill, which, at 15 per cent ad valorem, would then have fixed a duty of $4.56 per ton. The paper makers then asked you to raise it to a specific duty of $6 per ton.

In July, 1897, within a few days of the date of the passage of the law, I bought 3,000 tons of news-print paper from the Hudson River mill at a price of $32 per ton, delivered in New York, or $27.40 f. o. b. mill, which at 15 per cent ad valorem would have required a duty of $4.11 per ton, and you fixed a specific duty of $6 per ton, an increase of $1.89 per ton, or 46 per cent.

I understand that no one denies that the duty on mechanically ground wood or unbleached pulp was raised. However, it might be well to refer to the report of the Treasury Department (p. 866 of Hearings), which proves that the mechanically ground wood imported in 1897 was valued at $11.55 per ton, thereby establishing the point that the ad valorem duty at 10 per cent in 1897 was $1.15, and that it was raised at that time to a specific duty of $1.67 per ton.

The duty on print paper did not produce any material revenue to the Government, the average collection of duties on news-print paper for ten years, since the passage of the Dingley bill, having been $9,365 per annum. The importations for each year were (see p. 880) as follows: 1898, no paper imported; 1899, no paper imported; 1900, 86 tons; 1901, 18 tons; 1902, 49 tons; 1903, 20 tons; 1904, 1,890 tons; 1905, 3,316 tons; 1906, 1,788 tons; 1907, 8,733 tons.

In six of the ten years it may fairly be claimed that news-print paper was not imported; and it is obvious that under such circumstances the duty on news print can not be regarded as a revenue tax. Practically no news-print paper has been imported into the United States except on emergency consignments.

Mechanically ground wood for the five years reported by the Treasury Department (p. 866) averaged 67,846 tons per annum, yielding an average revenue of $117,508 per annum.

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Chemically bleached pulp was not imported (see p. 866). The importations of unbleached pulp for five of the ten years of which the Treasury Department furnishes a record averaged 31,000 tons, yielding an average revenue of $108,000 per annum. This importation of unbleached pulp carries with it a startling story of tariff demoralization.

Every result that was aimed at in the paper and pulp schedule, so far as it applies to the news-print business, has been reversed. The importations of mechanical pulp at the end of ten years are seven times as great as they were in 1898 (see p. 866), and our exports of news-print paper have diminished. The table furnished by the head of the export department of the International Paper Company (p. 1165) reveals a complete collapse of its foreign business because of conditions it had fostered at home. When you considered this paper schedule in December, 1896, Mr. Warner Miller told your committee that the primary purpose of any consolidation would be the exploitation of foreign trade. Subsequently, when the International Paper Company was formally organized, in January, 1898, Mr. Hugh J. Chisholm painted for the American Paper and Pulp Association a beautiful word picture of a proposed invasion of the world's markets. He counted $61,000,000 worth of paper business awaiting the American touch. He pictured the genius of our manufacturers, and he proposed to tap the golden hoard; but we find to-day that the International Paper Company has abandoned all the trade which years of effort had accumulated, and we are no nearer the foreign goal to-day on news-print paper than we were ten years ago. Our export trade of wood pulp has dwindled to half of what it was ten years ago; and a great part of that news-print paper export which now appears in the Treasury records represents, not a business based on the sound principles of growth, but a purely artificial propagation, fostered by drawbacks and paid by the United States Government to the International Paper Company upon wood pulp brought into the United States and Canada and converted into news-print paper for export, with comparatively small advantage to American labor. The head of the foreign department of the International Paper Company estimated these exports at 17,000 tons, though the Treasury figures (see pp. 693 and 1005) failed to reveal that quantity. Those drawbacks for exportations were particularly grievous under the circumstances, because the company was taxing local consumers heavily for the paper it sold to them under the plea that it did not have enough paper to go round. To that extent the Government was placing a premium upon the paper famine, though a New York speculator was the principal doer of harm in that direction.

Turning to the study of the cost of production, we find a variety of material on which to base a comparison. On February 18, 1907, Mr. J. R. Booth, of Ottawa, sold paper to the International Paper Company at $33 per ton (p. 1157). The Laurentide Paper mill made apparent profits of $500,286.97 during that year on all its business, but this included lumber. Other Canadian mills sold at $35 per ton f. o. b. mill.

In the summer of 1897, shortly before I had bought 3,000 tons, to which I have referred in computing the raise of 46 per cent on duty, I bought from the Glens Falls mill, New York, 40,000 tons of news-print paper for the New York World at $33 per ton, delivered in

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press room, New York, or $28.40 f. o. b. mill, which figure included mill profit. The fact that there were profits in the operation of that mill is shown by the millions bequeathed by the men who owned and ran it. I then estimated that the cost of production at that mill, at that time, was about $24 per ton.

On April 14, 1904, the International Paper Company sold 900,000 tons of news-print paper to the Hearst publications under a ten-year contract at a price of $37.60 delivered in New York, Chicago, and Boston. This price was equivalent to $33 f. o. b. mill, and included profit for the company.

In the years 1906 and 1907 the cost of production at the Hudson River mill of the International Paper Company was $27 per ton (p. 705). In studying cost, the point should be noted that the Hudson River mill supply of wood comes from Canada. It is brought by rail from preparing mills in the St. Maurice River at a cost for transportation of $3.50 per cord of wood or per ton of paper, whereas other wood of the same company cut in the Adirondacks is put into the Hudson River and is floated past this mill to other plants of the company at Glens Falls and Fort Edward with very little cost for transportation. Then, too, wood has been shipped by canal and Lake Champlain from Canada to those mills; but for some unexplained reason it has been sent entirely by rail to the Hudson River mill.

The annual reports of the International Paper Company (p. 1211) indicate earnings as follows:

	Gross income.	Expense.	Earnings.
1898–1899 (17 months)	$20,956,221	$17,061,046	$3,895,175
1899–1900	18,707,635	15,581,759	3,125,876
1900–1901	20,711,902	16,750,245	3,961,657
1901–1902	19,719,420	16,818,225	2,901,195
1902–1903	20,142,771	16,529,310	3,613,461
1903–1904	20,304,514	17,150,531	3,153,983
1904–1905	20,908,666	17,640,198	3,268,468
1905–1906	21,837,816	18,679,296	3,158,520
1906–1907	21,841,486	19,000,016	2,841,470
1907–1908	20,716,304	17,878,134	2,838,170
Total for 10 years and 5 months	205,846,735	173,088,760	32,757,975
Average per annum	19,761,287	16,616,521	3,144,766
Improvements improperly charged to cost per annum			1,000,000
			4,144,766
Deducted for taxes and insurance			188,800
Net earnings per annum			3,955,966

The output for the International Paper Company for ten years has averaged less than 450,000 tons per annum. According to President Burbank (p. 716) the company has been spending $1,000,000 per annum on "improvements." The company is including that expenditure for improvements in its cost of production total. After allowing for taxes and insurance as part of the cost, we find that the annual profit has averaged $8.79 per ton on a basis of 450,000 tons of annual production, and that the manufacturing profit has been 29 per cent on cost f. o. b. mill; that the average price for paper delivered has been $43.91 per ton, or $2.19 per 100 pounds, or $11.91 in excess of the price at which I bought paper when the Dingley bill passed. Further, that the average cost of production has been $35.12

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per ton delivered, or $30.52 f. o. b. mill. The company's figures of cost are based on juggled bookkeeping, which added at least $3 per ton for cost of wood at many mills, and the figures are also based on the production of many mills which are antiquated and unfit for news-print paper purposes and upon a costly method of assembling raw material whereby 7 sulphite plants supply 15 news mills. A properly balanced mill should have grinders and sulphite digesters and paper machinery concentrated at one place.

In ten years the International Paper Company has shown a distinct recession in its position. That $60,000,000 corporation has not displayed intelligence in its management. It has attempted to combat every law of trade and it has failed. A company whose business is run on the basis of secrecy and lying and deceiving its customers is doomed to disaster. The day will come when its bondholders will change its policies and methods and make paper at less than $24 per ton and meet all customers in the markets of the world on even terms at open prices, free of all combinations, doing business on a cash basis, standardizing its output, selling its undeveloped water power, cutting wood from its own lands, disposing of the acreage it does not need, encouraging trade schools, and revolutionizing the methods of its selling department.

When the company had an opportunity in 1905 to borrow $5,000,000 on bonds, it spent the proceeds, and it took another plunge promptly into a $5,000,000 floating debt. Its managers had put a premium upon competition because of their methods. They seem to be unable to take care of the property; and they beg the Government to help them maintain its impossible policies. It is a giant shackled by stupid servants; but may it not be that a corporation invites speculation with its possessions when it puts its officers in the atmosphere of Wall street?

The Great Northern Paper Company is selling to the New York World and to the New York Herald at prices which, including profit, net it about $31.40 per ton at the mill. I have been credibly informed that the Great Northern Paper Company, even with those low contracts on its books, was making a profit of $4,000 per day on an output of 400 tons per day, or $10 per ton profit. If we assume an average price of 2 cents per pound, or $40 per ton, delivered, on all of its contracts, and a cost of 23 cents per 100 pounds, or $4.60 per ton, for marketing its paper, we will find a production cost of $25 per ton.

American news-print paper sold in Sheffield, England, last year (p. 2020), on a basis of $39 per ton of 2,000 pounds, f. o. b. New York, while selling to New York customers at $50 per ton. In April, 1904, we called the attention of the Judiciary Committee of the House to the action of the International Paper Company in selling paper for London on a basis of $35 per ton f. o. b. New York while charging local customers $45 per ton; and when I told the Mann committee that that same corporation had been selling abroad at lower prices than it had sold to domestic customers, it cunningly evaded the point by furnishing, not its actual prices for special markets abroad at particular periods, but it gave an average price for each year (p. 1980). Even upon that table it admitted that in two years, 1903 and 1904, it obtained a lower price for foreign business than for domestic supply.

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I have eminent authority for the statement that American mills can make paper cheaper than Canadian mills. I refer to Sir William Van Horne, the president of the Laurentide Paper Company, of Canada, which produces 160 tons of news-print paper per day, or double the quantity that all Canada uses. He said the advantage of the American mills over the Canadian mills was as follows: A supply of skilled labor, cheaper coal, adequate home market, cheaper mill supplies, cheaper first cost of machinery, cheaper repairs and maintenance, lower ocean rates for export, lower marine insurance on exports.

He omitted, however, the most important advantage which the American mills have. Canada is handicapped by excessively cold winters. In the north country it costs 25 per cent more to operate in winter than in other seasons.

The head of the export department of the International Paper Company, Mr. Chable (p. 433), is authority for the statement that Scandinavia, Finland, Canada, and the United States are the only countries that can make news-print paper profitably. American paper will command an advance of from 7½ to 10 per cent over the European make. Sir William Van Horne furnishes an explanation for that difference in quality in describing the fiber of the Baltic product as "silvery and not making a feathery pulp like the American product." It is obvious that the American paper maker is protected against the Baltic paper maker by the cost of transportation and by a difference of $1.50 or $2 per ton in quality, by better and therefore cheaper labor, and by many of the things in our favor enumerated by Sir William Van Horne. The one striking fact which stands out as the primary and conclusive evidence of the inability of the Scandinavian news-print paper maker to enter this market is the point that in all the periods of high prices in the United States not a pound of British or Baltic or German news-print paper has ever been brought into the United States.

The mills at St. Croix, Millinocket, and Berlin, which are modern plants, can compete successfully with Canada or any other mills, and can make cheaper paper. This fact is just as true to-day as it was about the year 1897, when Mr. Hugh J. Chisholm sold paper in Toronto at an invoice price of $25 f. o. b. Otis Falls. Mr. Ballou, of Menasha, Wis., who buys pulp wood for 16 Wisconsin mills, indicated to the Mann committee (p. 2131) that America can manufacture news-print paper as cheaply or cheaper than Canada. It was the action of this single buyer in going 1,500 miles away from his western mills to purchase 50,000 cords of pulp wood that precipitated the hysterical performance in paper prices in 1907, though the most serious work of price-raising was done by a New York speculator.

The western mills had been suffering from the results of the imposition of the countervailing duty on paper. Their natural source of supply is Ontario; and when that Province prohibited export of pulp wood, you increased the cost of the raw material of those mills. The statement by him that American mills, presumably Wisconsin mills, can make cheaper paper than Canadian mills, has additional force because of this extra cost of wood. There is another disadvantage which the western mills overcame. The wood pulp furnished to them is small in diameter. Much of it is unfit for any other purpose. The spruce tree in that section does not grow much beyond 10 inches in

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diameter, and the material used for pulp grinding will not average 6 inches. Some of it is less than 3 inches in diameter, and makes extra waste and loss in barking the wood for the grinder (p. 2108). Some of the western mills are adjuncts of lumber establishments, and must take the leavings. Many of them are one-machine plants which can take only a proportion of the sizes which may be offered to them, and which lose a percentage of their production when they are unable to fully cover the wires of their paper machines. Notwithstanding this difficulty, the western mills have made money on prices of which they have complained. It required a corkscrew to extract from them any admission of financial gains. So far as I have been able to gather, the Mann committee has not been able to obtain the bona fide production cost of modern news-print mills; but I anticipate that the tariff committee of the American Paper and Pulp Association will deluge you and it with cost figures of machines that should have been consigned to the scrap heap, or turned to uses other than the manufacture of news-print paper in competition with the fast-running and finely appointed paper machines of recent construction.

It has been announced that the Committee on Ways and Means is to ascertain the comparative cost of production here and abroad. We are told that the American Paper and Pulp Association would submit such figures. May I deferentially ask how such figures can be ascertained? What type of mill shall be taken? The antiquated type or the modern mill—the two-tour or the three-tour system—the mill that makes its own ground-wood and sulphite pulp or the mill that makes neither—the mill that speculates in timber tracts or the mill that buys pulp wood at the market, owning no timber tracts—the machine mill that rents its power or the mill that owns its water rights—the mill that can take only particular sizes that fit an unusual width or mills with enough machines to carry any sizes or orders? Shall we compare with Canadian mills or with British mills or with German mills? How shall the basis of comparison be established, and who shall establish it? Will you select a mill that is run as a news-print paper mill or one that is a by-product of a lumber proposition or one that is a consolidation of a number of antiquated plants half of which should be in the scrap heap?

Few of the western mills own any timber tracts. The Northern Paper Company, representing a pool of four mills, owns 40,000 acres in Wisconsin; the Kimberly Clark Company, producing 240 tons of paper per day, owns 30,000 acres; the Consolidated Company, of Grand Rapids, owns 20,000 acres. All the 21 mills scheduled to participate in the western merger owned 73,000 acres of timber land. These figures are in striking contrast with the 4,000,000 acres which the International Paper Company acquired with borrowed money. The western mills have managed to prosper in disregard of the assertion of President Cowles, of the American Paper and Pulp Association (p. 890 of Hearings), that "nobody would go into the business to-day, build a new mill, who could not first secure an adequate amount of timber lands to supply the mill permanently with wood."

Of news-print paper mills in this country, 50 have no sulphite adjuncts. Included in that 50 are 9 mills which have no ground-wood attachments.

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TARIFF KEPT UP AMERICAN PRICES.

Because of the tariff tax of $6 per ton we have not been able to buy for domestic use that Canadian paper which has been offered extensively at $1.75 f. o. b. mill within the last four months. The gentleman's agreement or combination which has controlled the American news-print paper market has maintained the domestic price at a figure just below the importing point, which was $2.05 f. o. b. mill. It did not seem right in July, 1908, a normal season, when there was no drought and no strike, that Canadian paper should be sent to London for sale at a price which was $5 cheaper than American newspapers could buy from American mills that had shut down parts of their plants and discharged their American labor rather than cut "agreed prices." The driving out, by threats, of 10,000 tons of Canadian paper which had been bought for this market by S. A. Cook, of Neenah, Wis., is conclusive evidence of the abuse of the tariff benefaction by American paper makers.

During the ten years which have passed since the passage of the Dingley bill there have been many periods when the tariff has forced an increase in the paper price. I calculate that in 1898, during the Spanish-American war, newspapers had been taxed fully $6 per ton because of the tariff; that in four years, from 1901 to 1904, inclusive, the tax enabled local mills to add from $2 to $6 per ton to the cost of paper; and that in 1907 and 1908 the import duty has added from $5 to $6 per ton to the cost of paper.

When the Mann Committee visited Grand Rapids, Wis., Mr. G. F. Steele, the general manager of the Nelsoesa-Edwards Paper Company, compared the conditions of American and German mills. He said the paper makers of America were slow to take advantage of possibilities in the manufacture of paper—that in some respects they showed the traits of the day laborer—that the paper business is primitive in many places and shows a lack of technical knowledge. The Germans have visited the United States. They have appropriated its ideas and have developed new methods because of their superior technical knowledge. In this respect the forces employed in American mills are lacking.

I commend to the earnest study of this committee the statement which appears at the end of report 29 of the Mann committee, wherein Mr. Steele describes with some elaboration the primitive character of the American mills as compared with the German mills; and that becomes quite important in connection with the matter of the raising of the duty on sulphite pulp.

In placing an import duty upon pulp and paper you have put a premium upon inertia. You have given the paper makers a false sense of security which has destroyed their initiative. You have unintentionally induced them to form pools and to arbitrarily raise prices and to open up the American market to an invasion which has put at least one branch of the business—that of sulphite pulp—in desperate straits. Germans obtained their help from the technical schools; and they have not only driven us out of foreign markets, but have undersold the American manufacturers in the home markets, and have displaced 57 per cent of the sulphite in the United States.

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The paper makers who are asking for protection have been buying sulphite pulp from the foreigner in preference to buying it from the domestic producer, and doing so to the extent of 57 per cent of the total consumption of sulphite pulp.

The men who have been trying for more than five years to hold up and tax every user of sulphite pulp and of paper, have wrought their own undoing. They now come to you and impudently ask you to increase the import duty in order that they may increase their exactions; that they may have a new license to despoil their customers, and that they may continue trade policies which are impossible—in short, that they may push water up hill. Visit the paper mills, as the Mann committee has done, and you will find some methods which are said to be traceable to the twelfth century. Our paper makers have gone to sleep. Imagine a sulphite mill without a trained chemist! And yet there are very few sulphite mills in America employing chemists. Out of 22 mills of all sorts which the Mann committee visited, only 4 may be said to be approximately up to date. The beneficiaries of your tariff favor have allowed the world's market to slip away from them.

Paper can be made more cheaply in America than elsewhere. It is possible to capture the markets of the world. We have the materials and we have the opportunity; but we can only do it by putting the American manufacturer on his own resources, and by withholding from him those tariff favors which have been an incentive to indolence. (I refer now to the paper business.) Withdraw your premium upon stupidity and ignorance, and the world is ours for the paper makers and the paper user. Put the spur of necessity upon American talent, and it will win its way; coddle it, and you weaken it.

A removal of the duty on news-print paper would make impossible any combination to raise price. It would place an automatic check upon monopoly. It would nullify the plan by which the International Paper Company and others have expended millions to acquire undeveloped water powers and desirable timber tracts, and to shut out competition. Free paper would steady prices rather than lower them. It would modernize the business, giving consumers the benefits of the latest methods and machinery. Existing duties have raised the price of paper and pulp by giving to the paper manufacturers a shelter behind which they could organize combinations. While the tariff does not account for the full advance in price, the tariff plus the tariff-engendered combinations do account for all of it.

Now I reach the last of my sections—combinations.

COMBINATIONS AND OTHER ILLEGALITIES.

A delegation of paper makers, headed by Mr. William A. Russell, appeared before the Ways and Means Committee on December 31, 1896, and urged the framing of the paper schedule to suit the purposes of a number of mill men who were then organizing the industry so that they might control prices. I appeared before the Ways and Means Committee at that time and charged that these gentlemen were then planning to form a combination of mills and to raise the price of news-print paper to 2½ cents per pound, or $50 per ton. On

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page 1760 of the report of that proceeding you will find that Mr. Russell said:

I deny both that there is a combination formed, or practically formed, or that any combination or any consideration of this matter by the paper manufacturers which contemplates raising the price of paper at all.

Within seven months after the passage of the so-called "Dingley bill" the International Paper Company was formed from a consolidation of about 30 paper mills, and immediate steps were taken to mark up prices. We call your attention to this matter to show you that at that time the paper makers misled and deceived Congress.

Combinations to restrict production and to fix prices have been made in almost every one of the divisions of the American Paper and Pulp Association, as follows: News-print paper, book paper, fiber and manila, box board, sulphite pulp, tissue, writing, blotting paper, soda pulp.

Information relating to all these combinations was submitted to the Attorney-General in October, 1907, and was subsequently embodied in a formal letter to him under date of February 10, 1908. We gave to him data covering—

Dates of meetings, allotments of output, fixing of prices, restricting of production, pool profits and payments, paying mills to shut down, refusal of quotations to particular brokers, limitation of periods of contracts, limitations upon jobbers, instructions to counsel to find a plan for conducting the affairs of the association in such manner as would defeat any attack upon it by Federal or State Government (I do not mean the American Paper and Pulp Association, but one of these subsidiary associations), permission to members to bid on a prospective contract in competition with outsiders.

Up to date, the General Paper Company has been dissolved, and the Fiber and Manila Association has been indicted and punished. The Box Board Pool collapsed on April 1, 1908. The Sulphite Pulp Association dissolved and reorganized in December, 1907, as a Bureau of Statistics. The president of the American Paper and Pulp Association, David S. Cowles, resigned September 24, 1908, to make way for Arthur C. Hastings, of Buffalo, who has been employed to organize a so-called "Bureau of Statistics" for the paper trade.

The trade disturbances and price fluctuations in news-print paper, due to unlawful combinations, have been continuous since the passage of the Dingley bill. The creation of the General Paper Company in the West merged the news-print output of about 19 mills, and when the Federal Government dissolved it at the instance of newspaper publishers, one of its officers threatened publishers with the vengeance of higher prices, apparently ignoring the fact that the association had already helped to add $10 per ton to the cost of news-print paper.

On December 1, 1906, 21 western mills signed a tentative agreement to merge (p. 1999) into a corporation with $18,000,000 of stock and $15,000,000 in bonds, and additional bonds for 73,000 acres of timber owned by the mills. A syndicate was also planned to "protect the value of said bonds against the effect of injudicious and premature sales, and the ultimate realization of their full worth." I quote the phraseology of the proposition. The participants in that deal declined to testify on that subject before the congressional com-

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mittee, one witness explaining that while the committee might grant immunity against prosecution under Federal laws, it could not protect him against the application of Wisconsin laws (pp. 2128 and 2133).

Mr. John A. Davis, who had been manager of the General Paper Company until its dissolution and who had been largely responsible for the methods which ultimately wrought its ruin, joined the firm of H. G. Craig & Co., of 261 Broadway, New York, February 1, 1907. His new venture was attended with the prompt acquirement of the selling agency of a number of mills which theretofore had been acting independently. He controlled an output of about 750 tons daily from the following mills:

St. Regis Paper Company, St. Croix Paper Company, Gould Paper Company, Taggarts Paper Company, West End Paper Company, Malone Paper Company, Le Ray Paper Company, De Grasse Paper Company.

Incidentally he also sold paper for mills like the Cliff. At a period when prices were hardening from some cause, Mr. Davis tied up over a million dollars in paper, representing more than 20,000 tons, so that when publishers applied to the International and Great Northern Paper companies they were informed that no paper was to be had from them, but suggested that a call be made on Mr. Davis. Within fifteen minutes, in one instance, Mr. Davis called on the long distance telephone and arranged to ship paper at a price of $2.65, equaling $53 per ton. The representatives of the large paper companies instead of exposing this manipulation of the market to the publishers and the authorities, steered purchasers to him, and they were equally guilty. Mr. Davis's action explains the so-called paper famine of 1907. The testimony of Mr. H. J. Brown, of the Berlin Mills, indicates another phase of Mr. Davis's operations in paper (p. 1387). Again, in March, 1908, when the Belgo-Canadian Mill, of Shawinigan Falls, sold 10,000 tons of news-print paper to an American purchaser, Mr. S. A. Cook, of Neenah, Wis., president of the Alexandria Pulp and Paper Company, of Indiana, he was not permitted to dispose of all of it in this market and 2,500 tons were sold to Lloyd, London, and another slice went to England, the purchaser paying the difference in cost. Some of the mills had apparently planned in August, 1908, to create a paper panic by writing to applicants that the entire output for next year had been sold out, all of which was untrue, because in other places its output was for sale.

At present, with pulp wood a drug in the market, many of the mills being loaded up with more than a year's supply in stock, and with wages and supplies reduced in cost and with capacity nearly 1,200 tons per day in excess of demand, the paper mills are holding out for what seem to be agreed prices for future delivery.

They seem to have formed that kind of a gentleman's agreement which the Paper Trade Journal declared "would avoid legal pitfalls." Incidentally it may be noted that the minutes of the Parks Pool disclosed the fact that the paper-trade publications had been urged to a "conservative" policy.

At all times the methods of the paper makers have promoted secrecy and favoritism in prices. The International Paper Company in 1907 quoted a price of $52 per ton to Mr. Bass, of the Bangor

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(Me.) Commercial, who was within 7 miles of its paper mill, and it quoted $50 per ton to papers in Atlanta and St. Louis (p. 1178). In one town where three publishers of equal merit were buying paper, one paid $35 per ton and another paid $55 per ton to the same manufacturer for identically the same article. The testimony before the Mann committee showed that in the year 1908 a price of $37.60 was paid by the Hearst papers, against a price of $50 by other papers in the same cities to the same company. The paper makers have arrayed themselves against open prices and against open dealing. They have preferred to keep their mills idle and their labor unemployed and to allow Canada to sell paper here, to the advantage of Canadian labor and the disadvantage of their own labor, rather than sell paper f. o. b. mill. When I applied to the Remington-Martin Company for 100 tons of paper which it wanted to sell it refused to let me have it because I refused to tell the name of the buyer, the place to which it was to be shipped, and the contract relations of the purchaser to other companies. I applied to every considerable news-print paper mill east of the Rocky Mountains for paper on terms which insured cash in advance for the paper delivered on car at the mill, and I was not able to buy from more than two out of fifty mills. Many of them needed orders. Their labor was working part time; but they preferred to respect a "gentleman's agreement" and starve the market to maintain a price. Recently I applied for a price for paper to be furnished to a western publication, and I then discovered that the paper makers not only interchanged information, but apparently kept an index of the expiration of each paper contract. Cases have been brought to my notice of applicants for paper quotations who would be seated in one room while a clerk would call up someone to ascertain the status of the applicant. Almost invariably prohibitory prices were quoted under such conditions. Scores upon scores of publishers have complained that in some unaccountable way they had been apportioned to a particular mill at a given price and that all the results of a paper pool were accomplished, notwithstanding the denials of the news-print paper makers. What right has the farmer to say who shall make into bread the wheat that he sells? Yet these favored paper makers undertake to follow their paper into our press rooms and to dictate what publications shall be printed upon it. When the selling department of any corporation makes contracts in secret and makes discriminating rates to publishers and favors some and oppresses others, I say that the concern is unsound at its core and that its methods are a crime against the stockholders of that corporation.

(The committee thereupon took a recess until 8 o'clock p. m.)

EVENING SESSION.

WAYS AND MEANS COMMITTEE,
Saturday, November 21, 1908.

The committee reconvened at 8 o'clock p. m., Hon. Sereno E. Payne (chairman), presiding.

The CHAIRMAN. Mr. Norris, you may proceed.

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STATEMENT OF MR. JOHN NORRIS, CHAIRMAN COMMITTEE ON PAPER, AMERICAN NEWSPAPER PUBLISHERS' ASSOCIATION, NEW YORK, N. Y.—Continued.

Mr. NORRIS. Upon our application to Congress for relief a year ago we were told that our remedy was through the executive department and the courts. We furnished to the Department of Justice the data by which the Fiber and Manila Association, the Box Board Pool, and the Sulphite Pulp Association could be reached. We furnished evidence against other groups of paper makers. We furnished the data which resulted in the dissolution of the General Paper Company and in the issue of a permanent injunction against its members, prohibiting them from acting in concert. Subsequent to the issue of that injunction many of them cooperated with the Parks Pool in Fibers and Manilas. One of their number, the Petoskey Fiber Company, of Michigan, openly associated itself with that pool. Twenty-two members pleaded guilty to violation of law. They had robbed paper users of an average of $2,000,000 per annum by arbitrarily raising prices $16 per ton, and by closing mills and by restricting production and by depriving labor of its just rewards, because the tariff kept out foreign competition. A federal judge, upon the recommendation of the United States district attorney, let them off with a fine of $2,000 each, or $48,000 in all. I hold that indulgence of that sort was not a punishment. It amounted to a license to break the law. If the records of the meetings of the Fiber and Manila Association are examined, I am confident it will be found that many of its members are breaking the law to-day, and that they are meeting regularly to fix prices. As a specimen of the flagrant disregard of law which the Fiber and Manila men show, I exhibit to you the first page of the Paper Trade Journal of November 12, giving the details of a uniform price list which they had adopted as of November 5, 1908, advancing prices $3 per ton.

Against the Box Board Pool which invoiced goods exceeding $32,000,000 in value, at a pool profit of $4,835,652 on 853,677 tons, and against the Sulphite Pulp Association, the records of which are in possession of the authorities, not one step of which we are aware has been taken.

I noticed that Mr. Sidney Mitchell was on the list to address you on the matter of box boards. It is unfortunate that Mr. Mitchell did not appear, because Mr. Mitchell was head and front of the box-board pool and the prime factor in the wreck of the United States Box Board Company.

The Petoskey company, which was guilty of contempt of court in openly disregarding the writ of prohibition of the court, has apparently escaped all penalties. To whom shall we look for a stoppage of such lawbreaking? Do you propose to continue to show favor to these transgressors and to saddle upon the paper consumers the burdens of their misdoings? All respect for courts and for laws is destroyed when such things are possible.

Carrying our complaints to the Mann committee, and telling our story to that body, we encountered perjury and lying in every aspect. We had charged that the International Paper Company was producing 63,000 tons of manilas annually in four of its mills and was selling that output through the Continental Paper Bag Company, its exclusive selling agent. We charged that the International Paper Com-

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pany, through the Continental Paper Bag Company, whose stock it controlled, was participating in that pool. Mr. Waller, vice-president of the International Paper Company, appeared before the Mann committee on May 18, 1908 (p. 1169 of hearings) and unqualifiedly denied any participation or any interest in any combination or any pool of any sort, either directly or through selling agents, and this applied to "any grade of paper." Yet within thirty-two days after that testimony was given, that is, on June 19, 1908, the Continental Paper Bag Company pleaded guilty to participation in the fiber and manila pool. The Continental Paper Bag Company hid its identity in the records of the association by appearing on the minutes as John Smith. And the indictment shows that that association voted (see folio 55 of indictment, a copy of which I have here) to send its uniform price list to Mr. Sparks, of the Union Bag and Paper Company, and "one to Mr. Waller, of the International Paper Company, for their guidance."

Mr. G. H. P. Gould also appeared before the Mann committee on May 16, 1908, and denied all knowledge of or participation in any combination (p. 1011 of Hearings). On June 19, 1908, that is, thirty-four days thereafter, the corporation of which he was and is president pleaded guilty to participation in the fiber and manila pool.

Officers operating western fiber and manila mills appeared before the Mann committee and testified that they knew of no arrangements for restricting output or fixing prices, yet they did meet. They did agree to close their mills for a period. They did close their mills, and they did so in disregard of the prohibition of the United States court dated June 18, 1906.

Practically all of the mills of Wisconsin which were participants in the General Paper Company have united in the creation of a traffic bureau which concentrates the routing and handling of one and one-half million tons of incoming and outgoing traffic for them. The same mills have common buyers who purchase all of their pulp wood. For a time all of them had auditors inspecting their books and gauging their business assumedly for Dean and Shibley. In view of the fact that these mills quote what seem to be agreed prices and accuse each other occasionally of cutting prices, I can not conceive of any machinery more complete for a combination in restraint of trade.

The Fiber and Manila Association and the Sulphite Pulp Association affect the news-print paper situation. When mills which can be changed to make news-print paper with slight cost are made excessively profitable in other directions by these pooling arrangements (see p. 226), then their equipment is kept out of news-print paper production, and a news-print paper famine is promoted.

RESTRICTION OF OUTPUT.

When the International Paper Company was organized, it absorbed 111 machines making news-print paper, with an assumed capacity of 1,600 tons per day. Three of the machines were sold. Fifteen were discontinued, 5 were leased, and 15 were diverted to other uses. Only 2 machines for making news print have been added to the equipment, and that was not done until after the lapse of nine and one-half years. To-day it has 67 news-print machines with a capacity of 1,416 tons per day, but as the International Paper Company had diverted 125 tons of its product from domestic to foreign service, the

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supply to its American customers was 1,291 tons per day, or 309 tons per day less than its rated capacity for news-print production in 1898. If it enjoyed your tariff benefaction it should have taken care of the domestic supply, and the responsibility for a paper famine rests largely on it. We also call attention to the testimony of the manager of the Combined Locks Mill (p. 2102), who shut down his mill and discharged his help rather than solicit orders.

On November 25, 1903, all the news-print mills agreed to close down for one week and to reduce the quantity of paper on hand. Notices of the shut down were circulated and printed in the trade press. As a result of that performance there was a paper famine and prices bounded to $50 per ton. Then the Publishers' Association appointed a committee which visited Washington in April, 1904, and appeared before the Judiciary Committee of the House in an effort to compel the paper makers to keep within the law. Ordinarily a paper mill might shut down when its output exceeded the demand. But when that shutting down is part of an agreement between mills to starve the market and to extort excessive profits from buyers and to throw thousands of workingmen into idleness, then that arrangement assumes another aspect.

THE SULPHITE POOL.

For more than five years the members of the Sulphite Pulp Pool have been attending monthly meetings to hold up the market by its boot straps. They were continuously embarrassed by the refusal of Theodore Burgess, of the Burgess Sulphite Company, of Berlin, N. H., producing 340 tons of sulphite pulp per day, to restrict his tonnage. Finally, he was bought out by Mr. W. W. Brown, of the Berlin Mills, who cut its production to 90 tons per day, and a shout of great joy went up over the elimination of this disturber. The pool members had not reckoned that the paper makers would desert them. They had a rude awakening, however, when they discovered that the purchasers of sulphite pulp, like George A. Whiting, of Menasha, Wis., were buying sulphite pulp where they could buy it cheapest (see p. 2066). Other mill men, including John Strange (see p. 2086) said they bought foreign sulphite because it was superior to the American product. The Germans had devoted great study and energy to the promotion of the sulphite manufacture and had made many improvements, while the American makers were content to run along on primitive methods. The high prices which the American producers had fixed, and to maintain which they had restricted their output, invited large importations of foreign pulp, so that in the first seven months of the year 1908 the foreign makers furnished 57 per cent of all the sulphite used in the United States. Twenty-eight thousand tons came from Europe, 11,000 tons from Canada, and 33,000 tons from American mills. In June, 1908, prices for sulphite dropped to a lower level than they had reached in eight years. The sulphite men professedly changed their organization on December 19, 1907, to one of statistics, in an effort to evade the federal statute. They now ask that Congress tax all paper users for their benefit by raising the duties on bleached and unbleached pulp.

The CHAIRMAN. It is not necessary to read that portion; just skip the part in reference to the newspapers.

Mr. NORRIS. Very well.

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The part referred to is as follows:

I submit a schedule of references to testimony of 42 newspapers, on uniform bids; of 54 newspapers, about refusal of mills to quote prices or to make contracts; of 13 newspapers, on lack of competition; of 18 newspapers, on limitation of contracts to one year; of 159 newspapers, on prophecies by paper-mill representatives of coming advances in prices and of a paper famine; of 7 newspapers, on interchange of information by mills; of 8 newspapers, on simultaneous advances in prices by paper mills; of 26 newspapers, on the allotment of consumers to particular mills; of 6 newspapers, about quotations made subject to change without notice or for twenty-four hours only; of 11 newspapers, on threats or scores by paper makers; of 99 newspapers, action by mills in fixing prices, including dates of meetings.

NO FEAR OF COMBINATIONS.

Mr. NORRIS. We have no fear of a trade combination as such. When it attempts to combat natural laws of trade it invites failure. In 1897 a new production of 500 tons of news-print paper resulted from the mere discussion of the scheme to consolidate 30 mills. The actual merge of those mills in 1898 induced the building of the Great Northern mill and of similar plants. The proposition to consolidate 20 Western mills into the General Paper Company also increased the Western capacity for paper, and periods of reaction and demoralization followed the seasons of artificial stimulation. The combinations of paper mills induced combinations of supply men, and of dealers in wild lands, all of whom marked up their prices, thereby appropriating much of the additional profits which the consolidators sought to obtain. The newspapers, however, carried everybody's load. What we object to are the methods of the dark lantern and of the sandbag.

The CHAIRMAN. Are there any questions to be asked? [After a pause.] That is all, Mr. Norris.

I understood that Mr. Norris was the only person who desired to appear in favor of the removal of the duty?

Mr. NORRIS. No, sir; I was the only one to appear for the newspapers. I have been delegated by the newspapers to represent them, but there are 4 representatives of the workers here.

The CHAIRMAN. Very well; we will have a division of the time.

Mr. NORRIS. These gentlemen will only take a few moments.

The CHAIRMAN. I do not know about that. We understood that you would only take an hour and a half, and you have taken much longer than that.

Mr. NORRIS. I have only taken an hour and a half, excluding the interruptions.

The CHAIRMAN. You were not interrupted for more than ten minutes.

The following extracts were submitted by Mr. Norris:

BOOK MEN MEET.

THEY DISCUSS THE UNSATISFACTORY CONDITIONS NOW PREVAILING—AFTER THE MEETING OF THE MANUFACTURERS IT IS REPORTED THAT LEADING WESTERN JOBBERS HELD A LITTLE MEETING OF THEIR OWN—A CONSOLIDATION OF WESTERN BOOK JOBBING HOUSES.

[From our regular correspondent.]

CHICAGO, ILL., *November 2, 1908*.—The majority of the western manufacturers of book and coated papers, together with a small representation of eastern manufacturers of the same grades of paper, met at the Auditorium, in Chicago, last week. No public announcement was made of the business transacted.

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It is reported that preceding the meeting there was a love feast, and that much of the misunderstanding and hard feeling prevailing since the summer meeting, which culminated in a cut of prices, was amicably settled. General conditions were discussed. Most of the manufacturers reported a substantial increase of orders, but that present low prices hardly covered the cost of production. Fears were expressed that the supply of pulp would be short this year because of the drought. While it was the consensus of opinion that conditions warranted higher prices for book paper, no immediate advance was predicted.

Before leaving Chicago several of the manufacturers were very active in soliciting orders at present prevailing prices, and in doing so hinted of possible future advances in price. One large Ohio manufacturer was reported not represented at the meeting.

Immediately after the book-paper manufacturers had left Chicago the sales manager of the Ohio mill arrived in town, and coincidently representative paper jobbers from Minneapolis, St. Paul, Louisville, St. Louis, and Kansas City. A meeting of the jobbers was held Saturday, and the Ohio sales manager was much in evidence. Chicago jobbers were not represented at the meeting. The representative of The Paper Trade Journal was told that no report of the meeting would be given to the public. The Minneapolis and St. Paul jobbers stated that they were in Chicago to see the Minnesota boys do up the Chicago University football players, but this did not explain the presence of the jobbers from St. Louis, Kansas City, and Louisville. The Ohio sales manager hinted that it was a birthday party. At any rate, some sort of a conference was held, and in all probability it was in reference to the book-paper situation.

The presence at the meeting of Judge Moore, counsel for the West Virginia Pulp and Paper Company, was also reported. It leaked out that there was a scheme of consolidation of ten of the large Western paper jobbing houses in contemplation. What advantages of consolidating were offered are not known to the public. The proposition was such a strange one that it is causing considerable talk in the trade. It seems that the gathering was not instigated by the jobbers, but by the manufacturers. It is reported that only one Chicago house was invited to attend the conference. Nothing definite was transacted, as all of the jobbers attending the conference were not in accord with the movement, whatever it was. One jobber dropped the remark that it would take more money than they had to buy them out, and that as far as his house was concerned he was not interested.

Later developments are awaited with interest by the trade, but, like other schemes which look well on paper, may never be realized.—The Paper Trade Journal, November 5, 1908.

Wrappings Advanced.

WESTERN M. & F. MEN ADOPT NEW UNIFORM PRICES ON MANILAS AND FIBERS—FIBER PAPERS AND NO. 2 MANILAS ADVANCED ABOUT $3 PER TON, BUT NO INCREASE IS ANNOUNCED ON NO. 1 MANILAS—COST OF PRODUCTION HIGHER BECAUSE OF SHORTAGE OF PULP.

The western manufacturers of manila and fiber papers have adopted a new uniform list of prices covering the various grades of manila and fiber papers. The list which became effective on Thursday of last week, reads as follows:

Screenings	$2.15
White manila, 30 to 35 pound	2.60
Butchers' fiber:	
50 to 65 pound	2.80
Heavy weights	2.90
No. 1 water finish (white or drab):	
40 pound and heavier	3.05
35 pound	3.20
30 pound	3.60
Black pattern paper, 35 to 50 pound	3.15
No. 1 colors:	
40 pound and heavier	3.30
35 pound	3.45
30 pound	3.85
No. 1 manila:	
35 pound and heavier	2.85
30 pound	3.00
25 pound	3.25
Butchers' manila, 50 pound and heavier	2.50

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No. 2 manila:	
35 pound and heavier	$2.60
30 pound	2.70
No. 1 water finish (all sulphite):	
40 pound and heavier	3.15
35 pound	3.30
30 pound	3.70
Green pattern paper, 35 to 50 pound	3.30
No. 1 dry finish:	
35 pound and heavier	3.15
30 pound	3.30
25 pound	3.70

The above prices are all delivered on a 20 cent freight rate or under. For all other places the excess freight must be added. On local shipments the prices would be the prices quoted above less 10 cents f. o. b. mill.

Sizes under 150 square inches, 10 cents extra.

Frames, 10 cents per 100 extra.

Tight frames, 20 cents per 100 extra.

Cases not less than 400 pounds to the case, 25 cents per 100 extra.

Rolls under 6 inches wide, 25 cents per 100 extra.

Rolls under 9 inches in diameter, 25 cents per 100 extra.

Blasting rolls, one-quarter of a cent extra for 5-pound rolls, 10 cents per 100 extra for each pound less in weight.

Reams less than 480 sheets count, $2 per ton extra.

Ream wrapping, 20 cents per 100 extra.

Wood cores to be weighed in and not returnable.

The eastern manufacturers are expected to adopt a similar price list within a short time.—The Paper Trade Journal, November 12, 1908.

STATEMENT OF MR. FRANK J. KELLY, REPRESENTING THE INTERNATIONAL PHOTO-ENGRAVERS' UNION OF NORTH AMERICA, WASHINGTON, D. C.

Mr. KELLY. The International Photo-Engravers' Union of North America asks the abolition of the duty on white paper and wood pulp, believing that the present duty limits the employment of members of our organization.

The enforced reduction in the size of plates made by our members owing to the increased cost of news-print paper has resulted in the loss of employment by many of our members.

Furthermore, practically every demand made for increased wages by our members on newspapers in the last three years has been contested on the ground that the increased cost of white paper has made it impossible to meet such demands.

The CHAIRMAN. The next gentleman to be heard is Mr. Patrick J. McMullen, of Cincinnati, Ohio.

STATEMENT OF MR. PATRICK J. McMULLEN, REPRESENTING THE INTERNATIONAL PRINTING PRESSMEN AND ASSISTANTS' UNION OF NORTH AMERICA, CINCINNATI, OHIO.

Mr. MCMULLEN. I simply want to verify the facts contained in the resolutions passed and adopted by our convention.

STATEMENT OF MR. JAMES J. FREEL, REPRESENTING THE INTERNATIONAL STEREOTYPERS AND ELECTROTYPERS' UNION, NEW YORK, N. Y.

Mr. FREEL. I want to say that I represent the International Stereotypers and Electrotypers' Union, the members of which are employed

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on the newspapers. I would like to read this resolution, which is a short one, for the purpose of placing our organization and the other organizations on record.

The CHAIRMAN. Proceed.

Mr. FREEL (reads):

Resolutions adopted by the joint conference board of the Allied Printing Trades, composed of delegates representing the International Typographical Union, International Printing Pressmen and Assistants' Union, International Stereotypers and Electrotypers' Union, International Photo-Engravers' Union, and the International Brotherhood of Bookbinders:

Whereas we, the workers employed in the various departments of newspaper and commercial printing offices throughout the United States, i. e., compositors, pressmen, stereotypers and electrotypers, photo-engravers, and bookbinders, to the number of over 100,000, feel that any combination which produces an artificial scarcity of news-print paper, and which unduly stimulates the price of product, is an oppression that affects alike the employee as well as the employer; and

Whereas the almost prohibitive and ruinous price of such paper has curtailed to an alarming extent the number of workers employed in the printing industry, and has further acted as a preventive to the printing trades artisans from securing higher compensation for their services, to which they are justly entitled: Therefore be it

Resolved, That this joint conference board, in session at Indianapolis, Ind., December 17, 1907, submit a memorial to the President of the United States and the Congress, and appeal for the abolition of the duty on white paper, wood pulp, and the materials which are used in the manufacture thereof.

Resolved, That all local unions affiliated with our various international organizations are requested to indorse these resolutions and forward copies to their Representatives and United States Senators.

I would like to say that that was the position of the organization that I represent in December, 1907, and that is their position to-day, and we respectfully ask the Ways and Means Committee to abolish the tariff on wood pulp and news print paper.

STATEMENT OF MR. J. W. HAYS, FIRST VICE-PRESIDENT INTERNATIONAL TYPOGRAPHICAL UNION, MINNEAPOLIS, MINN.

Mr. HAYS. Mr. Chairman and gentlemen of the Ways and Means Committee, representing the International Typographical Union, the largest organization which has to deal with the American Newspaper Publishers' Association, and, perhaps, the organization more closely associated with the management in relation to the papers they print, and being better informed as to the reasons why the size of papers is at this time reduced and the reasons why fewer members of that organization are employed by that association, I desire to say that our organization thinks it would be to the interests of its members and to the interests of 125,000 members associated with the allied printing trades that the duty on pulp and print paper be abolished.

The positions which we hold in the newspaper offices are such that we receive direct illustration at times that sizes of papers are reduced or at times that the papers might be larger than they are and more of our members employed were it not for certain things. We find from experience that the sizes of the papers are frequently reduced because of the fact that paper is scarce. We know from experience that these publishers hold the papers down to as small a size as possible ostensibly for the reason that the price of paper is so high. We believe that the ostensible reason is practical and true.

We also believe that were it not for this duty on wood pulp and print paper that there would be a much larger number of men employed in the paper mills. We believe that the tariff now existing on wood

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pulp and paper does not redound to any extent to the benefit of the people who are employed in those mills, and that without this tariff the demand for white paper would be so much larger and the demand for print paper would be so much larger that the benefit would accrue to the entire community by reason of the employment of a larger number of people in those industries. We believe that with the larger number of people employed in those industries that we, working under agreement, will get large wages as compared with the wages paid in the paper mills and that it would also result in the employment of a greater number of our members and in increasing our membership at the same time.

Therefore we believe that, while the tariff now existing does not increase in any way the wages of the people who work in the paper mills, it does decrease the opportunity to work in the newspapers throughout the country. Therefore we believe that large numbers of the working people throughout this country would be materially benefited by taking off the duty on paper.

I thank you very much.

The CHAIRMAN. As I understand, there is a large number of people who desire to appear in favor of retaining the duty on news print paper, and I understood that they would select some spokesman. Who is to speak first?

Mr. HASTINGS. Mr. Hastings, president of the American Paper and Pulp Association, will speak first—that is myself.

The CHAIRMAN. Very well, you may proceed.

STATEMENT OF MR. ARTHUR C. HASTINGS, PRESIDENT OF THE AMERICAN PAPER AND PULP ASSOCIATION, NEW YORK, N. Y.

Mr. HASTINGS. I do not intend, Mr. Chairman, to take any of your time this evening, as I understand the paper which I am going to submit will be printed in the minutes, and that will give more time to others who wish to be heard.

I have nothing to say, except in a general way, and I think you gentlemen can read the brief to better advantage than to have me read it from here. I do put myself on record—representing some 150 members of the American Paper and Pulp Association—as being in favor of the retention of the duties on paper and pulp, and I have no doubt, although I can not speak for them, that all the manufacturers of paper practically feel the same way.

I also desire to say that I have been listening this afternoon to the paper by Mr. Norris. I never did like that paper, and this is the third or fourth time I have heard the most of it.

I also desire to file with the committee a statement from the Box Board Manufacturers who were not present when their names were called by the chairman.

(The statement referred to by Mr. Hastings follows:)

Mr. Chairman and Gentlemen of the Ways and Means Committee:

Representing the box-board industry in the United States, we submit the following reasons for our request that the present tariff on box boards be maintained:

The capital invested in the box-board industry is approximately $33,000,000. There are 126 box-board mills with an annual capacity of 970,000 tons, valued at about $30,000,000, employing approximately 6,300 wage-earners who receive about $4,000,000 in wages per annum, besides salaries of officials, clerks, etc., of about $800,000 per annum.

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The freight paid railroads on box boards is more than $2,000,000 annually, besides freight paid on products coming into the mills. Approximately 3,000,000 tons of material are purchased and consumed per year in the manufacture of box board.

The industry is increasing largely. According to United States census reports the box-board tonnage in 1900 was 365,000 tons, at a value of over $10,000,000; in 1905, 520,000 tons, at a value of over $16,000,000, and we figure the present capacity 970,000 tons, at a value of $30,000,000, or an increase of 200 per cent in eight years. Raw material and labor are considerably lower abroad than in the United States.

Notwithstanding the duty of 25 per cent on boards, large quantities are imported in increasing volume each year.

Box board is mostly manufactured from waste material, namely, straw and waste paper, for which the box-board mills pay annually over $14,000,000. This material would necessarily be burned or otherwise destroyed if not used in the manufacture of box board. The freight rate on straw board from the mills to eastern manufacturing centers averages about $4 per ton, while the rate to same points from foreign countries is about $2 per ton.

Owing to cheapness of labor, waste paper is purchased in England, shipped to Holland and Germany, manufactured into box board, and sold in New York and Philadelphia. We are informed that several board machines have recently been purchased for shipment to Japan. These will undoubtedly be used to supply boards to our Pacific coast.

For the above reasons we believe that our industry is at least entitled to the protection afforded by the present tariff.

Respectfully submitted.

(Signed) CHAS. E. WILLIAMS.
SIDNEY MITCHELL.
WM. R. SHAFFER.

Mr. GRIGGS. What is the association which you represent?

Mr. HASTINGS. The American Paper and Pulp Association.

Mr. GRIGGS. What is that association composed of?

Mr. HASTINGS. Manufacturers of paper and pulp in all lines, writing paper, box, news paper, wood pulp, sulphite, etc.

Mr. GRIGGS. What is the purpose of the association?

Mr. HASTINGS. Originally the purpose was supposed to be to look out for their interests in the matter of legislation or state matters, so that they could take up as an association matters which the individuals could not take up. Finally, it got to be a social organization with a meeting once a year, a dinner, and a general good time.

Mr. GRIGGS. They do not hear from one another during the year?

Mr. HASTINGS. They have not until the last year. We have been quite active with a view to trying to get them interested in the tariff matters.

Mr. GRIGGS. Is there anyone here to speak for them?

Mr. HASTINGS. That is naturally my business. I am the president of the association.

Mr. UNDERWOOD. You heard Mr. Norris's paper. It was your association he referred to as controlling the prices of wood pulp and paper?

Mr. HASTINGS. I heard a great deal that Mr. Norris said.

Mr. UNDERWOOD. What have you to say as to that?

Mr. HASTINGS. I say it is absolutely false, without any foundation of fact.

Mr. UNDERWOOD. There is no combination in your association to control the price?

Mr. HASTINGS. There is absolutely none.

Mr. UNDERWOOD. Or to control the market?

Mr. HASTINGS. No, sir.

Mr. UNDERWOOD. Does your association in any way divide the market that your mills shall supply paper to?

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Mr. HASTINGS. No, sir.

Mr. UNDERWOOD. Is there any understanding that you shall maintain the same price during the year or a relative price?

Mr. HASTINGS. No, sir.

Mr. UNDERWOOD. Is it a fact that the price of news paper, white paper, is about the same at all times?

Mr. HASTINGS. It is not a fact.

Mr. UNDERWOOD. You all have selling agents who control your product?

Mr. HASTINGS. No, sir. Some sell more or less direct by correspondence. I am the treasurer and manager of the Cliff Paper Company, of Niagara Falls, N. Y. We make practically 40 tons of paper a day. All that paper is sold practically by correspondence and some through jobbers, all the way from California to Australia.

Mr. UNDERWOOD. What is the amount of white paper the newspapers consume in the United States?

Mr. HASTINGS. Roughly, probably 3,500 tons a day.

Mr. UNDERWOOD. How much of that is produced in the United States?

Mr. HASTINGS. 3,500 tons.

Mr. UNDERWOOD. The present duty, then, is prohibitive?

Mr. HASTINGS. No, sir; it is not.

Mr. UNDERWOOD. There are no importations?

Mr. HASTINGS. Yes, sir.

Mr. UNDERWOOD. To what extent?

Mr. HASTINGS. Last year about 25,000 tons were imported, as I understand.

Mr. UNDERWOOD. What is the percentage of importations to the amount of production in the United States?

Mr. HASTINGS. Some years there is none imported. Other years, due to abnormal conditions as to extra demand or as to short production through water conditions, there might be any percentage up to 2 or 3 per cent.

Mr. UNDERWOOD. What is it on the average?

Mr. HASTINGS. I should not say that there were over ten or fifteen thousand tons on an average imported.

Mr. UNDERWOOD. What is that percentage as compared with the amount of production in this country?

Mr. HASTINGS. That would not be over about 1 per cent or 2 per cent.

Mr. UNDERWOOD. Then the present duty is practically prohibitive in so far as its result on the market is concerned?

Mr. HASTINGS. Not if the prices warrant.

Mr. UNDERWOOD. I mean at the existing prices. Of course, I recognize that the prices can go up and bring in a great deal of paper. I mean considering the question from what the normal prices have been in the past and the normal importations?

Mr. HASTINGS. No; I do not think it is prohibitive. I consider an overproduction in another country that wanted to sell at a dumping price can come in, and does.

Mr. UNDERWOOD. But the normal condition of the market, with the present duty, is not inviting to the shipment of paper into this country?

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Mr. HASTINGS. Not at the market price, no; but there is paper which might come in under a cause which would not forbid dumping.

Mr. UNDERWOOD. Of course, we are considering the proposition from what actually is taking place, not from what might happen.

Mr. GRIGGS. Has it ever happened.

Mr. HASTINGS. Yes, sir.

Mr. GRIGGS. It has happened?

Mr. HASTINGS. Yes, sir.

Mr. GRIGGS. And broke the price of paper over here?

Mr. HASTINGS. There would not be enough to come in to break the price, but we paper manufacturers believe that to let down the bars so any country that is better situated through natural conditions to compete with us, and with the cheaper labor, that it would not be many years before the business would increase so that you would practically put the mills of this country out of business.

Mr. GRIGGS. Where are the importations from?

Mr. HASTINGS. Canada, Norway, and Sweden.

Mr. GRIGGS. There is no cheaper labor in Canada?

Mr. HASTINGS. Yes, sir; a little cheaper labor.

Mr. GRIGGS. One of the mill men here swore that they had higher labor?

Mr. HASTINGS. I did not hear that statement, but we have a report from the select committee.

Mr. GRIGGS. I said "swore;" I meant, stated the fact.

Mr. HASTINGS. If he was a paper manufacturer, it would not have made any difference between swore and stated.

Mr. GRIGGS. I just wanted to keep the record straight, that is all.

Mr. CLARK. You have an idea that a paper manufacturer is more likely to tell the truth than other people?

Mr. HASTINGS. No, sir; not necessarily.

Mr. CLARK. Your remark, then, was supposed to be humorous?

Mr. HASTINGS. Yes, sir.

Mr. CLARK. Are you one of the 24 men who were fined $2,000 each?

Mr. HASTINGS. No, sir.

Mr. CLARK. Who were those gentlemen?

Mr. HASTINGS. I do not know.

Mr. CLARK. Do you undertake to tell this committee that you do not know the men who were prosecuted and fined $2,000 apiece by the court?

Mr. HASTINGS. I certainly do. I might tell you an individual here and there.

Mr. CLARK. What were they fined for?

Mr. HASTINGS. They were accused of some kind of collusion.

Mr. CLARK. Collusion about what?

Mr. HASTINGS. As to selling or controlling the price or something of that kind. I do not know what.

Mr. CLARK. They were prosecuted under the antitrust law. Is that true or not?

Mr. HASTINGS. I tell you I do not know. They were not members of our association. They do not make that kind of paper.

Mr. CLARK. Any of them here?

Mr. HASTINGS. I do not know.

Mr. CLARK. What has become of the International Paper Company?

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Mr. HASTINGS. It is still in existence.

Mr. CLARK. Do you undertake to say that they do not control or fix the price of paper in the United States?

Mr. HASTINGS. I certainly do.

Mr. CLARK. How much is paper selling for now?

Mr. HASTINGS. Whose paper?

Mr. CLARK. Anybody's paper.

Mr. HASTINGS. My paper is selling for 2.65, 2.75, and 3 cents.

Mr. CLARK. How much is that a ton?

Mr. HASTINGS. Anywhere from $50 to $60 a ton.

Mr. CLARK. How much was it selling for when the Dingley bill was passed?

Mr. HASTINGS. In what year?

Mr. CLARK. In 1897.

Mr. HASTINGS. I know that some paper sold as low as 1.50 and 1.60 cents.

Mr. CLARK. The effect of the Dingley bill has been to put the price up from $32 or $33 to $55?

Mr. HASTINGS. I do not consider it did; no, sir.

Mr. CLARK. It went up?

Mr. HASTINGS. Yes, sir; so did wheat.

Mr. CLARK. The time it went up coincides with the life of the Dingley bill?

Mr. HASTINGS. Very well.

Mr. CLARK. There was no earthly connection with the two?

Mr. HASTINGS. Not necessarily.

Mr. CLARK. What did put it up?

Mr. HASTINGS. The law of supply and demand.

Mr. CLARK. The law of supply and demand?

Mr. HASTINGS. Yes, sir.

Mr. CLARK. What made you shut down your factories and create a paper famine?

Mr. HASTINGS. I did not.

Mr. CLARK. Did anybody?

Mr. HASTINGS. I do not know.

Mr. CLARK. What did you say put the price of paper up?

Mr. HASTINGS. The law of supply and demand.

Mr. CLARK. How does it happen that you sell your paper $10 a ton less abroad than you sell it to the paper men in the United States?

Mr. HASTINGS. I do not.

Mr. CLARK. Does anybody?

Mr. HASTINGS. Not that I know of.

Mr. CLARK. Did you ever hear of it being done?

Mr. HASTINGS. No, sir.

Mr. CLARK. Do you export paper?

Mr. HASTINGS. Not this year.

Mr. CLARK. Who does export paper?

Mr. HASTINGS. I presume the International Paper Company and probably the W. H. Parsons Company.

Mr. CLARK. Are you a part of the International Paper Company?

Mr. HASTINGS. I am not.

Mr. CLARK. Did the International Paper Company pick you to represent them?

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Mr. HASTINGS. No, sir. I represent the American Paper and Pulp Association.

Mr. CLARK. Is it true that these paper concerns pay lower wages than the laboring men of like class receive in other occupations in the United States?

Mr. HASTINGS. I do not think it is. I think that that statement is incorrect for a similar class of labor.

Mr. CLARK. How much revenue does the paper business bring into the United States Treasury?

Mr. HASTINGS. In 1907 it brought in something like $15,000,000 or $17,000,000; but I do not mean that that was the amount of paper imported.

Mr. CLARK. How much revenue?

Mr. HASTINGS. It is roughly, perhaps, 15 per cent of that.

Mr. CLARK. Is not that rate about prohibitive?

Mr. HASTINGS. No, sir.

Mr. CLARK. If all the schedules, Mr. Hastings, brought in as little revenue in proportion to the amount of business, then the United States Government would have to look to some other source of revenue besides the tariff?

Mr. HASTINGS. I do not know. I am not a tariff expert. I can not tell what the income is.

Mr. CLARK. You know the Government spends about a billion dollars a year?

Mr. HASTINGS. I know they spend a lot of money.

Mr. CLARK. Do you not know they spend about a billion dollars?

Mr. HASTINGS. I have seen it stated as something like a billion dollars.

Mr. CLARK. You do not take any interest in that?

Mr. HASTINGS. Yes, sir.

Mr. CLARK. I think you are better informed than you seem to be. The question is, if all the other industries in the United States brought as little revenue to the Federal Government as the paper business does, in proportion to the volume of business, then the revenue derived from the tariff would be infinitesimal, almost; it would hardly be worth considering?

Mr. HASTINGS. How about the things we import that go into paper?

Mr. CLARK. That is just it. Is there a prohibitive tariff on what you use?

Mr. HASTINGS. Prohibitive as far as we are concerned.

Mr. CLARK. There is no revenue hardly comes into the Government from the paper business?

Mr. HASTINGS. There seems to be.

Mr. CLARK. Well, how much?

Mr. HASTINGS. Fifteen per cent or 20 per cent on practically $20,000,000 of imports during the year 1907.

Mr. CLARK. There was $20,000,000 of paper imported that year; how much last year?

Mr. HASTINGS. That is the year ending June 30, 1907; I have no figures after that.

Mr. CLARK. It amounted to about $196,000.

Mr. HASTINGS. The income to the Government?

Mr. CLARK. Yes, sir.

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Mr. HASTINGS. It must have been over that.

Mr. CLARK. Do you not think that you could stand a shaving down of one-half of this tariff so that the Government could get some revenue out of this business?

Mr. HASTINGS. No, sir.

Mr. CLARK. If everybody else reasoned that way where would the Government get its revenue?

Mr. HASTINGS. From some of the luxuries, I imagine.

Mr. CLARK. On luxuries. If we put the price up on luxuries so we keep them out we would not get any revenue on luxuries?

Mr. HASTINGS. They are pretty well up.

Mr. CLARK. You are a man a good deal above the average of intelligence——

Mr. HASTINGS (interrupting). I thank you.

Mr. CLARK (continuing). And you have a packed audience who laugh at anything you say.

If the rate is so high that it shuts out the stuff, the Government does not get any revenue?

Mr. HASTINGS. Certainly not.

Mr. CLARK. And if all these other tariff schedules were as high in proportion as this one is the Government could not get enough revenue out of the whole tariff system to run for a month?

Mr. HASTINGS. You make the statement and I am not going over your figures.

I wish to say that I am the representative of a lot of manufacturers. You speak of a "packed audience." There are a number of other manufacturers here. I understand Mr. Norris represents all the publishers in the United States.

Mr. CLARK. Mr. Norris happens to be one man as against the crowd here.

Mr. HASTINGS. He has the combination of newspapers back of him.

Mr. CLARK. They do not happen to be here.

Mr. HASTINGS. They are represented by one man.

Mr. CLARK. You think that the uniform price of paper in the United States is an accidental occurrence?

Mr. HASTINGS. There is no uniformity of price, as far as I know.

Mr. CLARK. Do you not know that that is practically the case?

Mr. HASTINGS. No, sir; I do not know that that is practically the case.

Mr. CLARK. That is all. I can not hope to get much information from you.

Mr. HASTINGS. I am ready to answer any questions, Mr. Clark.

Mr. RANDELL. How much does it cost to make this news print paper?

Mr. HASTINGS. The cost is different at different mills.

Mr. RANDELL. How much does it cost in the mills you operate?

Mr. HASTINGS. I can not tell you offhand to the cent, but I refer you to my testimony before the select committee which is printed where the cost per pound is given by decimals.

Mr. RANDELL. I care nothing about the decimals, I want to get at the facts. How much does it cost on an average to make news print paper?

Mr. HASTINGS. Perhaps at this time—it depends upon whether a man has his own wood or has to buy his wood pulp.

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Mr. RANDELL. Do you really want to tell me the cost?
Mr. HASTINGS. I would like to know when you want the cost.
Mr. RANDELL. If you were to sell paper at so much f. o. b. mills, what would be the average price of that paper now?
Mr. HASTINGS. To-day?
Mr. RANDELL. Yes, sir.
Mr. HASTINGS. At my mills it would probably cost 2⅛ cents. At another mill it might cost more than that.
Mr. RANDELL. A little over $40 a ton?
Mr. HASTINGS. Yes, sir.
Mr. RANDELL. That is the paper you sell for $55 or $60 a ton?
Mr. HASTINGS. Yes, sir.
Mr. RANDELL. And the cost you named to me is all the expense, and the balance would be profit?
Mr. HASTINGS. That is not so. Do you want to know what we figure the cost of paper, what we figure for depreciation on the plant and the interest we have invested?
Mr. RANDELL. Not counting any depreciation on the plant.
Mr. HASTINGS. How are you going to arrive at the cost? Who is going to pay for the depreciation?
Mr. RANDELL. What I want to get at is the difference in the cost of manufacture, the daily or monthly output, and the price that you get for the product.
Mr. HASTINGS. I do not think that is a fair question, because what we get to-day might be an entirely different proposition next month.
Mr. RANDELL. Outside of the depreciation and value of your plant, would the $40 a ton represent what that paper cost you now, the paper which you sell for $55 or $60 a ton?
Mr. HASTINGS. Less the freight and cartage.
Mr. RANDELL. There is no freight about it, it is delivered f. o. b.?
Mr. HASTINGS. I was not giving you the price delivered on board.
Mr. RANDELL. I said f. o. b.?
Mr. HASTINGS. You are coupling the cost price with the delivery price, without making any allowance for freight.
Mr. RANDELL. Do you mean to say that you did not give the price at the mill?
Mr. HASTINGS. The price at the mill and also the price delivered, but where is the freight coming in?
Mr. RANDELL. Did you not say that the price that the paper cost you f. o. b. at mill was 2.2 cents?
Mr. HASTINGS. Two and one-eighth cents.
Mr. RANDELL. Did you not state that it was all profit, except what would be the deterioration in the value of the plant? You did not say anything about freight?
Mr. HASTINGS. You did not say anything about the selling price.
Mr. RANDELL. You would have no freight to pay if this was f. o. b.?
Mr. HASTINGS. Then we did not get $55.
Mr. RANDELL. How much did you get?
Mr. HASTINGS. Probably $50.
Mr. RANDELL. What is the price?
Mr. HASTINGS. Fifty dollars.
Mr. RANDELL. That would make a difference of about $15?
Mr. HASTINGS. Yes, sir; $7 or $8.

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Mr. RANDELL. What was the price a year ago or fifteen months ago?

Mr. HASTINGS. The price was about the same, a little less, if anything, but in the interim it was lower.

Mr. RANDELL. It is higher now than before the panic?

Mr. HASTINGS. It is about the same, a little higher, if anything, than before the panic.

Mr. RANDELL. What caused it to go up?

Mr. HASTINGS. The law of supply and demand.

Mr. RANDELL. What caused it to go down?

Mr. HASTINGS. The same reason.

Mr. RANDELL. There was no demand for it?

Mr. HASTINGS. Exactly.

Mr. RANDELL. I thought that the newspaper people were complaining that they could not get paper unless they paid $10 a ton more for it. Was it the great demand that made it go up $10 a ton?

Mr. HASTINGS. Yes, sir; certainly.

Mr. RANDELL. Where was that demand, in the United States?

Mr. HASTINGS. Yes, sir.

Mr. RANDELL. Was that a sudden demand?

Mr. HASTINGS. It was a gradual, growing demand.

Mr. RANDELL. Was there anything extra in the cost?

Mr. HASTINGS. The cost went up somewhat.

Mr. RANDELL. What was there in the cost of production that made the price of your paper go up?

Mr. HASTINGS. Labor particularly.

Mr. RANDELL. How much higher is your labor now than fifteen months ago?

Mr. HASTINGS. I will not say that there is very much difference in the cost of labor, but when we went from the two-tour to the three-tour system then our labor cost went up.

Mr. RANDELL. When was that?

Mr. HASTINGS. In January, 1907.

Mr. RANDELL. You say that there is no understanding throughout the United States or among any of the mills that you know about or in the association which you are president of—that there is no understanding to keep up the price and to have a uniformity of price?

Mr. HASTINGS. No, sir.

Mr. RANDELL. Or any division of territory?

Mr. HASTINGS. No, sir.

Mr. RANDELL. Do I understand that you do not know of any such thing or that it does not exist?

Mr. HASTINGS. I do not believe it exists. Our association has nothing to do with it in any event. All the men who make paper do not belong to our association.

Mr. RANDELL. Do you think there is any chance for competition to come in, any reasonable business chance, which would reduce the price of this paper that you say the demand caused to rise, if the tariff remains as it is now?

Mr. HASTINGS. Yes, sir; it has in the past.

Mr. RANDELL. Where?

Mr. HASTINGS. There is one mill in construction in Minnesota with a capacity of 200 tons a day with a promise to the prospective buyers of bonds and stocks that they can within six months or a year double

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the capacity; that is, in the United States under the protective tariff. I do not believe that they could sell the stocks and bonds if you took the tariff off.

Mr. RANDELL. How did you find that out?

Mr. HASTINGS. That is public property; it has been in the papers.

Mr. RANDELL. Has it any connection with your mills?

Mr. HASTINGS. No, sir.

Mr. RANDELL. That would be an increase of 400 pounds as against 3,500 pounds a day now?

Mr. HASTINGS. Yes, sir; practically 10 per cent.

Mr. RANDELL. Will that, in your opinion, cause the price to go down?

Mr. HASTINGS. It has always had a lowering effect.

Mr. RANDELL. Do you think that when that mill goes into operation the effect will be to reduce the price $10 a ton?

Mr. HASTINGS. It will have a lowering effect. I will not state any amount, because I do not know. It depends on whether the market absorbs the product.

Mr. RANDELL. Does it cost more to make the paper now?

Mr. HASTINGS. Yes, sir.

Mr. RANDELL. Why?

Mr. HASTINGS. I have tried to explain that.

Mr. RANDELL. Is the stumpage higher?

Mr. HASTINGS. We have not any stumpage.

Mr. RANDELL. Have you any timber lands?

Mr. HASTINGS. No, sir. We buy the wood. We have a small mill compared with some of the other mills.

Mr. RANDELL. You represent this association, but you only have a few mills yourself?

Mr. HASTINGS. Only one mill.

Mr. RANDELL. Do you think that if the revenue was increased by lowering this tariff it would injure your business?

Mr. HASTINGS. Yes, sir; it would.

Mr. RANDELL. Suppose we cut the tariff in two, what effect would that have?

Mr. HASTINGS. Three dollars a ton is more than a mill of our class has made on an average in ten, fifteen, or twenty years.

The CHAIRMAN. Are you a practical paper manufacturer?

Mr. HASTINGS. Yes, sir; I think I am, sometimes.

The CHAIRMAN. You claim that a duty equivalent to about 15 per cent is necessary for the protection of the American manufacturer?

Mr. HASTINGS. Yes, sir; I do.

The CHAIRMAN. I want you to give me the facts, showing why that duty is necessary.

Mr. HASTINGS. In written shape, you mean?

The CHAIRMAN. I would like to have them "right off the bat," and now.

Mr. HASTINGS. I would rather give you that data a little later than to give it in such shape that I might be picked to pieces here.

The CHAIRMAN. You are not prepared to give it now?

Mr. HASTINGS. I would rather not. I would rather submit it to the committee.

The CHAIRMAN. Have you that information in written shape now?

Mr. HASTINGS. No, sir.

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The CHAIRMAN. You will put it in a brief and file it with the committee?

Mr. HASTINGS. Yes, sir.

The CHAIRMAN. As far as I am concerned, I am more interested in that question than any other. I want to know why the protection is necessary.

Mr. HASTINGS. I will be very glad to give you that information. In a general way I have stated that in this brief which I will file, but if we are going to get into a tariff argument I do not want to stand up here and be picked to pieces by gentlemen who know more about it than I do.

Mr. CLARK. Do you really think that there is anybody in this room who knows more about the paper business than you do?

Mr. HASTINGS. I think you know more about the tariff.

Mr. CLARK. In a general way that may be, but you have a particular part of the tariff to talk about that you know more about than I do.

The CHAIRMAN. Is there anyone here to give that information?

Mr. HASTINGS. Yes, sir; a gentleman will follow me who can give that information.

Mr. GRIGGS. The importations of print paper last year are given 21,123,254 pounds, value $596,819, and the duty paid $96,000. The exportations, you understand, which we have been discussing here, were 120,090,056 pounds, with a value of $3,514,281. Will you tell me why it is that we are able to export in competition with the foreign concerns?

Mr. HASTINGS. Is that pounds?

Mr. CLARK. Dollars.

Mr. HASTINGS. Under what heading is that?

Mr. GRIGGS. "Exportations of printing paper."

Mr. CLARK. It is a government document.

Mr. HASTINGS. I know that I have never run across such figures and such a discrepancy; I do not understand it.

Mr. GRIGGS. You can not explain that?

Mr. HASTINGS. No, sir.

Mr. GRIGGS. We sent 48,000,000 pounds to the United Kingdom; 18,000,000 pounds to Japan; 12,000,000 pounds to Argentina; 6,000,000 pounds to Canada, the place you seem to be so much afraid of; 8,000,000 pounds to Australia, Tasmania, and New Zealand; 6,000,000 to Chile; 7,000,000 to Cuba, and more than a million pounds to Uruguay and Mexico each. Do you not think that pretty well covers the world?

Mr. HASTINGS. Yes, sir. I think we would cover the whole world if you would give us more protection.

Mr. GRIGGS. Do you not think that you have covered it pretty well now?

Mr. HASTINGS. We are doing very well, but we could do better. We have lots of nerve; the trouble is we have not enough money.

Mr. CLARK. The chairman asked you about the various items that made up this cost so that you required this 15 per cent duty to enable you to come out as you have come out; whether that is in the hole or not, I will not undertake to say now. That is one phase of this matter. Another one is that the Treasury is running behind at the rate of about $12,000,000 a month——

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The CHAIRMAN (interrupting). You have not the latest information. The condition has improved.

Mr. CLARK. If it has improved, I am glad of it.

The CHAIRMAN. Business is improving.

Mr. CLARK. Business has not improved except in the newspapers.

The CHAIRMAN. We will soon have a surplus.

Mr. CLARK. There is a large deficiency in the revenues; whether it is as large as I stated or as little as the chairman makes it, does not make any difference. We have got to make up that deficiency somewhere. That is one of the functions of this committee. Do you not think that the paper manufacturers in the United States ought to be willing to stand their part of whatever hardship it is to raise this deficiency in the revenues like everybody else has to stand their part? What do you say, as an American citizen?

Mr. HASTINGS. I say that we are paying our part.

Mr. CLARK. But you are not doing anything, according to these figures that Mr. Griggs has just read to you, because there has only been contributed $196,000.

Mr. HASTINGS. I do not understand that. In the first place, if we import $20,000,000 worth of paper on a basis of 15 per cent, I do not understand why it would not be over $196,000.

Mr. CLARK. If it is over $300,000, that is a small amount. You are not willing to stand any reduction in the tariff, according to your present attitude.

Mr. HASTINGS. We say that we are standing something now; we are standing it on the materials that go into the manufacture of paper.

Mr. CLARK. What is the difference between the American price of your paper and the foreign price—$10 a ton?

Mr. HASTINGS. No, sir; I do not think it is.

Mr. CLARK. Do you not sell the same paper, which you sell to the American consumer at $55 and $60 a ton, in Europe at $45 and $50 a ton?

Mr. HASTINGS. No, sir.

Mr. CLARK. Now, as a matter of fact, do you export paper?

Mr. HASTINGS. I have in the past, but not of late years.

Mr. CLARK. What is the difference between the selling price in Europe of American news paper and the selling price in America?

Mr. HASTINGS. I do not think there is any difference.

Mr. CLARK. Do you want to stand on that question?

Mr. HASTINGS. I do, as far as the American paper is concerned.

Mr. CLARK. According to your figures, you make a net profit of $8 on every ton of paper you manufacture?

Mr. HASTINGS. We do to-day, but not yesterday.

The CHAIRMAN. You are making more than a year ago?

Mr. HASTINGS. No, sir.

Mr. CLARK. Then the panic has not hurt you a particle?

Mr. HASTINGS. I do not know how you can say that.

Mr. CLARK. If you are making as much profit now as then?

Mr. HASTINGS. How about six months ago; you make a big jump in a year?

Mr. CLARK. We have been measuring things here by common consent by the year.

Mr. HASTINGS. But the question has been put to me what it was to-day and nothing was said about what it was six months ago.

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Mr. CLARK. How much profit were you making on a ton of paper a year ago?

Mr. HASTINGS. About the same amount.

Mr. CLARK. And how much about six months ago?

Mr. HASTINGS. We were selling paper six months ago at 2¼ cents.

Mr. CLARK. How much is that a ton?

Mr. HASTINGS. Forty-five dollars.

Mr. CLARK. And it was $55 a year ago?

Mr. HASTINGS. Fifty dollars to $55. Of course there are different grades.

Mr. CLARK. I know.

Mr. HASTINGS. The price is $2.50, or $50 a ton, for something that Mr. Norris might use in the Times and $55 for the same paper to some little fellow out in Squeedunk, the difference in the price being the actual difference in the cost.

Mr. CLARK. The fellow out in Squeedunk would be considered a retail buyer?

Mr. HASTINGS. It costs us more to produce the paper and put it up in bundles and wrap it.

Mr. CLARK. That is practically the retail trade; that would not be the case with Mr. Norris?

Mr. HASTINGS. If Mr. Norris was to say that he wanted his paper all in sheets and bundles we would charge him $5 more.

Mr. CLARK. I am trying to get some information, although it is pretty hard to do.

Mr. HASTINGS. I want to set myself right. I am perfectly willing to answer all the questions I can, Mr. Clark.

Mr. CLARK. You got $55 a ton practically a year ago?

Mr. HASTINGS. Yes, sir.

Mr. CLARK. And you got $45 six months ago?

Mr. HASTINGS. Yes, sir; and it has gone up to $55 again.

Mr. CLARK. What made it go up?

Mr. HASTINGS. The law of supply and demand.

Mr. CLARK. There is not any more demand for news paper now than six months ago?

Mr. HASTINGS. There is less being made.

Mr. CLARK. How did that happen?

Mr. HASTINGS. God shut off the rain in most parts of the country.

Mr. CLARK. You did not have any drought in the East.

Mr. HASTINGS. Yes, sir; a very serious one.

Mr. RANDELL. Your mill is located at Niagara Falls?

Mr. HASTINGS. Yes, sir.

Mr. CLARK. Was there any scarcity of water at Niagara Falls?

Mr. HASTINGS. That is the reason we are making a little paper.

Mr. CLARK. You get $8 profit, according to you own statement?

Mr. HASTINGS. Roughly; yes, sir.

Mr. CLARK. How often do you turn your money over in this business; every twelve months?

Mr. HASTINGS. In a year and a half on the average.

Mr. CLARK. You turn it over once in a year and a half?

Mr. HASTINGS. Yes, sir.

Mr. CLARK. How much is your company capitalized for? You do not need to answer that question if you do not care to.

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Mr. HASTINGS. I have no hesitancy about answering the question; $100,000.

Mr. CLARK. How much of that is money paid in and how much of it is water?

Mr. HASTINGS. One hundred thousand dollars paid in, good, hard cash.

Mr. CLARK. How much stock issued for the $100,000?

Mr. HASTINGS. One hundred thousand dollars.

Mr. CLARK. How much of a dividend do you pay?

Mr. HASTINGS. We paid on the first of the year a 24 per cent dividend.

Mr. CLARK. That is a pretty fair profit?

Mr. HASTINGS. Yes, sir. We have more money invested than $100,000. You did not ask me about that.

Mr. CLARK. That is what I want to get at. How much money have you got invested?

Mr. HASTINGS. We have between $400,000 and $500,000.

Mr. CLARK. And you make 24 per cent?

Mr. HASTINGS. One year we did.

Mr. CLARK. That would tide you over two or three bad years?

Mr. HASTINGS. On $500,000 it is less than 5 per cent.

The CHAIRMAN. The dividend was 24 per cent?

Mr. HASTINGS. Yes, sir.

The CHAIRMAN. On what amount?

Mr. HASTINGS. One hundred thousand dollars.

Mr. CLARK. The dividend was 24 per cent on $100,000?

Mr. HASTINGS. Yes, sir.

Mr. CLARK. How much have you invested?

Mr. HASTINGS. Nearly $500,000.

Mr. CLARK. What is it invested in?

Mr. HASTINGS. Buildings and machinery.

Mr. CLARK. The whole thing?

Mr. HASTINGS. No, sir.

Mr. CLARK. You do not own any timber lands?

Mr. HASTINGS. No, sir.

Mr. GRIGGS. Why did you capitalize the company at $100,000?

Mr. HASTINGS. It is a sort of a closed corporation. A few people put up the original $100,000 invested. Then we went on and doubled the plant and paid for that out of our own pockets, paid ourselves back, and we still have $100,000 left.

Mr. UNDERWOOD. You really acquired this additional surplus out of your earnings?

Mr. HASTINGS. Yes, in twenty years or more.

Mr. CLARK. You did get it out of the earnings?

Mr. HASTINGS. We have. But there were a good many years that we did not pay a dividend.

Mr. CLARK. You had some misunderstanding about what the basis is. As the basis of profit you ought to take the amount of money you paid in, ought you not?

Mr. HASTINGS. Yes, sir.

Mr. CLARK. Then you ought to mark off, if that is the proper term, whatever depreciation there is on your plant?

Mr. HASTINGS. Yes, sir.

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Mr. CLARK. And then you ought to add the labor cost, and the cost of material, and the transportation charges, so as to get it f. o. b., and then you ought to subtract what that would cost you from what you get out of the stuff ultimately, and that is what you calculated or declared a dividend on?

Mr. HASTINGS. I do not follow your bookkeeping exactly, but in a general way I think you have got it all in. [Laughter.] In a general way we charge off everything, and if there is anything left we call it a dividend.

Mr. GRIGGS. You do not lay aside any property for the surplus fund?

Mr. HASTINGS. In answer to the question, it is merely a question of so much money that we have got invested in that mill that we did not take out in profits, some that we were entitled to take out; and we were surely entitled to profits at some time.

Mr. GRIGGS. You said you took out $100,000.

Mr. HASTINGS. Yes; in one year.

Mr. GRIGGS. And in addition to the profits you have taken out as dividends you have a surplus of $400,000?

Mr. HASTINGS. Yes; but that is the aggregate of a number of years. That is not for one year. We did not accumulate that in one year.

Mr. GRIGGS. I am not as big a fool as I look like.

Mr. HASTINGS. I did not take you to be one. [Laughter.]

Mr. CLARK. Have you any data as to any manufacturing concern in the United States engaged in any sort of business that is making more than 5 per cent?

Mr. HASTINGS. Yes, sir.

Mr. CLARK. I would like to know where it is.

Mr. HASTINGS. I live in Niagara Falls part of the time and part of the time in New York. We have at Niagara Falls the Shredded Wheat Company. We make these hay biscuits [laughter], and I was fortunate enough to save a little money at one time, and I have got some stock in that, and I know we pay that. That is one concern that I know of.

Mr. CLARK. I have been diligently searching among all these fellows that have come here to find one fellow who has made a reasonable profit.

Mr. HASTINGS. I think the manufacturers of paper are entitled, as other manufacturers are, to a reasonable profit.

Mr. CLARK. I know, but I have been searching, I tell you, since these hearings began to find some one who was making a reasonable profit.

Mr. RANDELL. Did you say you make $8 a ton profit?

Mr. HASTINGS. To-day from $8 to $9.

Mr. RANDELL. And you make 40 tons a day. That would be over 10,000 tons a year, or $80,000 profit a year, and at that you would be making 20 per cent profit.

Mr. HASTINGS. No; you are taking one period and then jumping a number of months out of that period.

Mr. RANDELL. If you were in the same condition as a year ago, my figures would be correct.

Mr. HASTINGS. In two months from now the condition might be entirely different, possibly. The price of wheat to-day and the price

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six months ago and the price six months from now may be different you know.

Mr. RANDELL. Were the conditions favorable in 1906?

Mr. HASTINGS. Yes, sir.

Mr. RANDELL. How much less did you make then? Did you make $7.50 or $8.50?

Mr. HASTINGS. No.

Mr. RANDELL. Six dollars and fifty cents?

Mr. HASTINGS. No.

Mr. RANDELL. Five dollars?

Mr. HASTINGS. I do not think so. I think my report, however, shows exactly what we did make, which was proven by figures. There are no secrets about it. If you gentlemen, as I suppose you will, are going to run over these figures which are given from time to time in the different investigations of the select committee, you will get information that I swear we did not know ourselves about our neighbors.

Mr. GRIGGS. I do not intend to confine you to a day or an hour or a week or a particular month. How long have you been in the paper business?

Mr. HASTINGS. About twenty years.

Mr. GRIGGS. And you have made in twenty years $400,000 surplus. That makes $20,000 a year on $100,000. That is 20 per cent, because you must admit that that is property, is it not?

Mr. HASTINGS. No, sir. It is on leased ground, this plant is.

Mr. GRIGGS. But it is worth that to you?

Mr. HASTINGS. No, sir.

Mr. GRIGGS. You say you have $400,000 or more invested?

Mr. HASTINGS. Yes. It may be permanent, and——

Mr. GRIGGS. It is in there?

Mr. HASTINGS. Yes; it is in there, but we could not get it out. I would say frankly to you we are on leased ground. It is on one of the great power companies there. It is on a very low-priced water power—lower than we could get it ourselves. Otherwise we are handicapped there by being away from the forest, and as a matter of fact it is doubtful at the end of a ten or fifteen year lease what shape it will be in.

Mr. GRIGGS. When is your lease up?

Mr. HASTINGS. In 1926. It is not very far off.

Mr. GRIGGS. Whether you have gotten your money out or not, you have made that money and put it in it?

Mr. HASTINGS. Yes; but we have not got it out.

Mr. GRIGGS. That is a question of business judgment, not of tariff.

Mr. HASTINGS. I do not know about that. We would not have accumulated that if we had not had a tariff.

Mr. GRIGGS. And you accumulated, in addition to that, as I believe you told Mr. Randell, an average of 5 per cent?

Mr. HASTINGS. No. I do not think I said that. I said I did not think we have made an average of 5 per cent.

Mr. GRIGGS. I did not mean what you have made, but what you had paid in dividends.

Mr. HASTINGS. I said in answer to Mr. Clark that it was less than 5 per cent of the money we have invested.

Mr. GRIGGS. You are not counting the $20,000 you made every year and put in this, which in itself is 20 per cent. Then in answer to

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Mr. Clark you said you have made 5 per cent—"probably 5 per cent," to use your exact language—on the money you had invested, which was $500,000.

Mr. HASTINGS. That was the year we paid that dividend.

Mr. GRIGGS. What is your average on your investment?

Mr. HASTINGS. I could not tell you offhand. I have brought my books down here and given them a transscript from them.

Mr. GRIGGS. You put a little in that Havenner Biscuit Company, did you not?

Mr. HASTINGS. No, sir. I got out of that, and put it into the shredded wheat. I am county treasurer up in that county.

Mr. BOUTELL. How many paper mills, Mr. Hastings, are there in the country, altogether?

Mr. HASTINGS. There are, roughly, of all classes, something like 600.

Mr. BOUTELL. How many of these are in the organization of which you are president?

Mr. HASTINGS. I think the last report I had was 157 mills and individuals.

Mr. BOUTELL. So that there are 443 mills or manufacturers that are not in the association?

Mr. HASTINGS. Yes, sir.

Mr. BOUTELL. Of these 443 are any of them in any other association?

Mr. HASTINGS. There is no other paper association except this, except that of the stationers.

Mr. BOUTELL. How is it as to the International Paper Company and the American?

Mr. HASTINGS. They have one membership in it, just as I might have.

Mr. BOUTELL. They are one of the 443?

Mr. HASTINGS. No, sir; they are one of the 157. They are members of this association.

Mr. BOUTELL. You have given the entire domestic production of paper. Can you tell by a proportion of the paper output how many of these mills own their own lands from which they get their materials?

Mr. HASTINGS. No, I could not. They make no report.

Mr. BOUTELL. Do you know if that appears in any of these papers?

Mr. HASTINGS. I believe the paper that will be read by Mr. Lyman, who replies for the International Paper Company, will have a lot of information in it that I have not got, but, of course, they own a good many mills and woodlands.

Mr. BOUTELL. You have to go into the market to buy your pulp wood and your wood pulp?

Mr. HASTINGS. Yes.

Mr. BOUTELL. You do not know how many mills are in that position?

Mr. HASTINGS. No, sir.

Mr. BOUTELL. You do not know what proportion it may be by ratio of output?

Mr. HASTINGS. No, sir. Most of the mills up near Watertown own their own timber lands, whereas at Niagara Falls there is no timber land within easy reach, and we could not operate to advantage

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with the small amount of wood that we would get, and therefore it is cheaper for us to buy in the open market.

Mr. BOUTELL. What I hope will be brought out in this hearing is the ratio between the paper output and the ownership of stumpage.

Mr. HASTINGS. If anybody could answer that, Mr. Lyman could, who will follow me.

Mr. BOUTELL. Do you know how many of these paper mills there are in Canada?

Mr. HASTINGS. Roughly, I know of the news end of it, because that has always been my business, and I understand it is something like 450 tons of newspaper produced there under normal conditions, of which the home market of Canada used 90 tons and the other is 360 tons of export news out of the country, and that is practically all the amount that is raised. There may be other grades used at home in Canada, like wrapping paper and board and things of that kind.

Mr. BOUTELL. So that with the falling off of supplies in this country there will be an increased demand in this country, or if we repeal this duty the natural source of supply of the United States would be Canada?

Mr. HASTINGS. There is no question about it.

Mr. BOUTELL. When we repeal this duty on pulp or paper——

Mr. HASTINGS. When you do repeal it [laughter]——

Mr. BOUTELL. Put it that way. When we do, or if we do; supposing that the duty be repealed on the paper or the pulp, would we receive importations from any other country than Canada?

Mr. HASTINGS. Yes, sir; you would. You would receive shipments from Norway and Sweden, and inside of three years you would receive shipments from the Baltic, in Russia, where at present they are building sulphite mills to use their immense forests with pauper labor.

Mr. BOUTELL. In direct competition with the paper of Canada?

Mr. HASTINGS. Yes, sir.

Mr. UNDERWOOD. On that line I would like to ask you a question. A while ago you answered that if the price of paper to-day was $55 a ton——

Mr. HASTINGS. Of course, a great deal of paper is being sold for less than that on contract.

Mr. UNDERWOOD. Across the line, what is the same kind of paper selling for in Canada?

Mr. HASTINGS. I do not know. Mr. Marcuse may tell you. Some Canadians bought some of us at auction. I think they got $2.25 for it. That is $45 per ton.

Mr. UNDERWOOD. There is a difference in the price of paper to-day or any other day of from $10 to $25 a ton. If the duty was removed on manufactured wood pulp and newspaper, to what extent would it reduce the price in this country?

Mr. HASTINGS. I believe it would reduce the price pretty nearly the amount of the tariff; perhaps half. I say "half" because I happen to know that in the last year, when the price of paper went up here through natural causes, the Canadians thought that the American market was just right for their plucking and they came over here and made contracts for several United States papers; but in the contracts it was expressly stipulated that if the duty was taken off by the United States the Canadian was to have half and the American

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publisher was to have half. In other words, he proposed to divide if the duty was taken off. That is provided in the contract.

Mr. UNDERWOOD. With paper selling at $45 in Canada to-day, if the duty on wood pulp was all taken off at this moment, what would you say would be the price in this country?

Mr. HASTINGS. It would be the same. There is no surplus there.

Mr. UNDERWOOD. The price of paper then to-day would be $55 in this country?

Mr. HASTINGS. Yes.

Mr. UNDERWOOD. How would it be $55 in America or in the United States and $45 in Canada?

Mr. HASTINGS. For the reason that the market price is there. Most of their paper is bought on contract, and the market here for what little I might have to sell would be $55. It would not be within $4 or $5 a ton less.

Mr. UNDERWOOD. As the head of this association, I would like to have you answer a question. I do not care whether you take to-day to do it, or to-morrow, or any particular time, but I want to find out what you think would be the general effect of the reduction of this tariff. Take any day and fix the price of paper of to-day, with the duty on, and tell me what in your judgment the price would be with the duty off?

Mr. HASTINGS. That, as I gather, was about what the chairman wanted me to do.

Mr. GRIGGS. And give the reasons.

Mr. UNDERWOOD. Can you tell me what would be the difference in price with the duty off in this country?

Mr. HASTINGS. I say to-day I do not think there would be any difference, because there is not any paper to come in.

Mr. UNDERWOOD. If we repealed all duty to-day, the price would be the same?

Mr. HASTINGS. Yes; but what it would be six weeks or a month from now I could not say.

Mr. UNDERWOOD. While you said the general conditions of the trade are there, do you feel that the repeal of this duty would lessen the price of paper in this country or not?

Mr. HASTINGS. I believe it would.

Mr. UNDERWOOD. To what extent?

Mr. HASTINGS. Practically, as I said a few moments before, half of the duty, or about $3 a ton, because the Canadian demands half of it in the contracts which he did make last year in this country

Mr. UNDERWOOD. Then if paper under the duty was selling at $55, it would sell for $51.50 with the duty off?

Mr. HASTINGS. It would be $52.50. That is, on your basis of figuring.

Mr. UNDERWOOD. You think it would sell on the basis of $52.50?

Mr. HASTINGS. Yes. But as I say, I would not go into a tariff discussion here on that, but I will be glad to submit something at the chairman's suggestion.

Mr. GRIGGS. Does the price in Canada go down in Canada when it goes down here? When it was $45 a ton six months ago here was it then $45 a ton in Canada?

Mr. HASTINGS. I do not know. Really it does not come into this market.

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Mr. GRIGGS. They export to England?

Mr. HASTINGS. They can get in there without a tariff. But take off the tariff wall here—and we are right across the border from Canada—next door—and we will get it on account of the freight rates.

Mr. GRIGGS. If we take off this duty would your mill be for sale?

Mr. HASTINGS. Yes. It is for sale now if anybody wants it. In reply to the publishers' accusation, I must say they are utterly foolish, if they have the money that they are reputed to have made in their own business, in not having gone into the paper business. They ought to build mills. What is the use of getting out in the middle of the road and hollooing when they have a chance to remedy their own condition?

Mr. UNDERWOOD. The freight rates are heavy?

Mr. HASTINGS. Yes, sir.

Mr. UNDERWOOD. What advantage has the American mill over the Canadian mill in the matter of freight rates?

Mr. HASTINGS. Very little.

Mr. UNDERWOOD. Is not the American mill nearer to the Canadian market?

Mr. HASTINGS. Very little nearer. I have in my brief here the different freight rates from Canadian mills and from several American mills. You can judge for yourselves.

Mr. UNDERWOOD. What would you estimate the difference to be?

Mr. HASTINGS. I should say not over 2 per cent.

Mr. UNDERWOOD. Figure that in tons.

Mr. HASTINGS. From my mill to New York or to Boston it would be 15 cents. That is an even figure. From Chisholm, Me., to Boston it is 17 cents. They do not give the rate from the Canadian mills to Boston, but here is New York, 18 cents. That would be a dollar a ton, roughly, on that one shipment from Grand Mere, one of the large mills in Canada, to New York.

Mr. UNDERWOOD. In favor of the American manufacturer?

Mr. HASTINGS. In favor of the American manufacturer.

Mr. HILL. Right on that subject, would you not have the disadvantage of having to pay more freight on your pulp wood than the Canadian mill would in bringing your supplies to you?

Mr. HASTINGS. Yes, sir.

Mr. HILL. How would the two things offset each other?

Mr. HASTINGS. The Grand Mere mill absolutely has no freight rate. The river brings its supply to its door.

Mr. HILL. What is your freight rate?

Mr. HASTINGS. Ours is on the average $4 a cord from the average shipping point, if we get it in Canada.

Mr. UNDERWOOD. You do not buy it in Canada?

Mr. HASTINGS. We buy a good deal in the United States, and some in Canada.

Mr. UNDERWOOD. The western paper mills are very much nearer the western markets for the sale of their paper than the Canadian mills are, are they not?

Mr. HASTINGS. Yes.

Mr. UNDERWOOD. What is the differential in their favor on freight rates?

Mr. HASTINGS. I could not answer that, because I do not know.

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Mr. UNDERWOOD. It would be considerably smaller than the differential you figured a moment ago?

Mr. HASTINGS. I think it would.

Mr. GRIGGS. If the tariff was taken off everything else, would you be willing to have it taken off paper?

Mr. HASTINGS. Yes; I should say I would, because as a general plea that might answer. But I would not vote for such a proposition, and I am not a tariff shark, either.

Mr. GAINES. What proportion of the print paper does the International Paper Company make in the United States?

Mr. HASTINGS. Forty-three per cent, according to the last statement I saw.

Mr. GAINES. That is less than half.

Mr. HASTINGS. That is less than half.

Mr. GAINES. You were asked about contributing to the tariff duties or revenues of the Government. I see that we imported of wood pulp, mechanically ground and chemically unground and chemically bleached, 477,000,000 pounds, on which a duty was paid of $678,000, in round numbers.

Mr. HASTINGS. I understood from Mr. Clark that we had only paid $200,000.

Mr. CLARK. That was on paper.

Mr. GAINES. On paper, $96,000.

Mr. GRIGGS. On page 561 it is $96,000 as duties on paper.

Mr. GAINES. The duties on wood pulp were $678,000 and something?

Mr. GRIGGS. What page is that?

Mr. GAINES. Page 558. Adding to that $96,000 on print paper, it would make, in round numbers, $770,000 of tariff. You import your wood pulp, do you?

Mr. HASTINGS. We manufacture our own mechanical pulp and buy our sulphite pulp.

Mr. GAINES. Under what rate does that come?

Mr. HASTINGS. Chemical pulp.

Mr. GAINES. How much do you import in a year?

Mr. HASTINGS. We are not importing much of it. We are getting some now from Canada, because of the shortage some time ago, on contracts. Our aim is to buy American pulp.

Mr. GAINES. What is the present price of print paper in New York?

Mr. HASTINGS. Do you mean if a man wants a carload and wants it bad—right away?

Mr. GAINES. For one of the big New York dailies, for example?

Mr. HASTINGS. Their prices are $45 a ton, I understand.

Mr. GAINES. Do you know how much that would be on one single paper?

Mr. HASTINGS. On a paper the size of a New York paper, perhaps the Globe-sized page, or the Staats-Zeitung size, it would be about two and one-half mills. [Laughter.]

Mr. GAINES. I do not happen to know those papers. Say the New York Sun size?

Mr. HASTINGS. That is practically the same size—an eight-page paper.

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Mr. GAINES. Suppose the whole amount of tariff was added to the price of print paper. How much would that increase the cost of a single copy of a paper? Assuming that the tariff increases the cost of a paper about the whole amount of the tariff, how much, then, would it increase on that assumption the price of a single paper?

Mr. HASTINGS. Thirty-seven one-hundredths of a mill. [Laughter.]

Mr. GAINES. Then Mr. Norris was right in saying that they probably could not pass it on to the ultimate consumer.

Mr. HASTINGS. I am afraid they could not.

Mr. GAINES. Now take the small country daily. You spoke a while ago about wrapping up bundles for the small papers. At the present price of paper to those concerns, what would it amount to on a single paper?

Mr. HASTINGS. It would be so small that it would be quite difficult to figure it.

Mr. GRIGGS. Would it not be the same as any eight-page paper?

Mr. HASTINGS. No. They are generally smaller, and the country paper is usually printed once a week. It would be the same if the paper was the same size, a weekly paper with a thousand circulation, 2 reams of paper weighing 100 pounds. To the publisher of such a paper it would amount to $15 a year for his whole paper bill, a thousand copies a week, 52 times a year. It would make a difference of about $15 a year if the purchaser paid the whole duty, that is the publisher; and to the consumer it would amount to——

Mr. GAINES. It would amount to that to the publisher for all these papers?

Mr. HASTINGS. Yes, if he paid the duty. The cost of the New York paper was a quarter of a cent, two and one-half mills, for the paper.

Mr. GAINES. I am trying to get at that country newspaper cost if I can.

The CHAIRMAN. It takes about two reams for the country newspaper with a thousand circulation.

Mr. HASTINGS. That is just what I said.

The CHAIRMAN. How much does that weigh?

Mr. HASTINGS. About 50 pounds to the ream.

The CHAIRMAN. A country newspaper man told me that it was 30 pounds. Some is heavier than others, I suppose?

Mr. HASTINGS. Yes.

The CHAIRMAN. Fifty pounds to the ream—that would be 100 pounds to an edition, would it not?

Mr. GAINES. You will get me mixed up in my calculations, which will confuse Mr. Hastings. [Laughter.]

The CHAIRMAN. I hope to hear some witnesses on the vital facts of the case.

Mr. GAINES. How much did you say, Mr. Hastings, that that would amount to on a single paper?

Mr. HASTINGS. On a single paper it would amount to thirty-seven one-hundredths of a mill, the duty. [Laughter.]

Mr. CALDERHEAD. It is three-tenths of a cent a pound, is it not?

Mr. HASTINGS. Yes.

Mr. CALDERHEAD. It would take about six of those papers to weigh a pound?

Mr. HASTINGS. More than that.

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Mr. GAINES. Will you make a calculation and file it, showing exactly what the increased cost of a single paper would be of the sort we are talking about, on the assumption that the entire duty is added to the cost of the home product?

Mr. HASTINGS. Yes, sir.

The CHAIRMAN. It would take a little less than $10 a year. That is what it would be.

Mr. HASTINGS. On a 50-pound paper it would be $15 a year.

The CHAIRMAN. That would be 5,200 pounds a year. That would be $2.50, and the whole duty would be $15.

Mr. CLARK. You are taking the smallest paper you can find, printed on the flimsiest kind of paper.

Mr. HASTINGS. Are you speaking of the published circulation or the actual circulation? [Laughter.]

Mr. CLARK. About the actual circulation. I used to be in the newspaper business myself.

Mr. HASTINGS. Then I will not argue with you. [Laughter.]

Mr. CLARK. Instead of the average country weekly having but 4 pages, it has 8 pages, and frequently 12 pages, since they have got to running the patent insides and supplements and all that.

Mr. HASTINGS. And in that case, Mr. Clark, it would not cost the publisher $15 more. The additional cost would be on the man who gets out the patent inside.

Mr. GRIGGS. But he has to pay for the paper.

Mr. HASTINGS. Then it would not make any difference to the consumer, the country publisher.

Mr. CLARK. I understood from what you said a while ago that your immense profits are made by adding together all these small things.

Mr. HASTINGS. We have no immense profits.

The CHAIRMAN. I do not think that has any effect whatever. We would like to get at the practical facts of the case.

(Mr. Hastings filed the following statement:)

As president of the American Paper and Pulp Association I have been delegated to present briefly the contentions of manufacturers in paper and pulp as to the retention of the present duties in most instances and in a general way, an argument as to why they should be increased in some specific cases.

We understand the revision of the tariff is to be undertaken on the basis that—

"Such duties as will equal the difference between the cost of production at home and abroad, together with a reasonable profit to American industries."

We believe the paper industry, as a whole, will be satisfied with such a revision and asks for itself only the same consideration as to protection as is applied to other industries.

Importations of paper and pulp during the last few years should be considered, and if there were some kinds extensively imported that are, or might be, made in this country, the corresponding duties should be increased, not only for the sake of the manufacturer. but to build up the manufacturing industries of this country.

We ask only enough protection to enable us to meet such conditions as are imposed on our industry by nature or law, as we can not overcome by capital or energy the natural conditions existing in other countries due to cheap labor and more abundant nature.

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We believe that when business is normal and the demand equal to the supply the tariff has little or no direct influence on prices. During times of depression it is a protection to the home manufacturer, but with the present tariff, under any conditions, the rate is not so high but what foreign paper or pulp can be imported into this country to supply the demand without particular hardship to the consumer.

During the past year many thousand tons of the different grades of paper and pulp were imported into the United States, and at a time when the consumption of this country demanded it. Since January, 1908, at a time of general depression in all manufacturing lines, the paper business was no exception in its experience, with an apparent overproduction. Prices were very materially reduced over what they had been the previous year, due entirely to the law of supply and demand.

The duties on paper and pulp are much lower than the general average on all other lines. The duty on ground wood pulp, on an ad valorem basis, amounts to about 8⅓ per cent, according to the market price in vogue; on chemical pulp, about the same; on newspaper, 15 per cent; on book paper, from 15 to 20 per cent, according to grade; on writing paper, 25 to 35 per cent, according to weight and quality. Some few high-grade papers and specialties take a still higher duty, but the average duty on an ad valorem basis on all imports of paper for the year ending June 30, 1907, was only about 27½ per cent, whereas for all merchandise imported under other schedules it was over 40 per cent.

Manufactures of paper imported in 1898 were something like $2,840,000, which increased in 1907 to $10,728,000. During these same periods pulp increased from $600,000 to $6,348,000.

The Treasury Department is unable to give the actual amounts collected on the different grades of paper and pulp imported during any period, but there is no question that if the duty was increased upon the higher grades of chemical pulp the imports would decrease and this same quantity be manufactured in the United States; in other words, the domestic article would displace the foreign pulps now imported.

This argument will be taken up by one of the members of our association who is thoroughly familiar with the conditions as relating to the higher grades of pulp and the probable results if the duty should be increased to a point where we could compete with the foreign article. When it is known that there are some $300,000,000 invested in the paper and pulp industry, with an annual business of over $200,000,000, showing that it takes a year and a half to turn over the capital, and in some grades nearly three years, it will readily be seen that this business, as compared with many other manufacturing lines, requires more capital for its annual business and therefore needs more profit in the way of returns on the manufactured article.

A portion of the press of the United States to the contrary, no manufacturers of paper in this country have made exorbitant profits, and as a matter of fact they have not received an adequate return on the capital invested as compared with any of the staple industries of this country. While the industry has grown enormously, it is due to the energy of the American manufacturer and to the protec-

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tion afforded the industry by this Government in the shape of a tariff. Should the tariff be reduced, it would strike a blow that would be most serious to this industry and lead to the abandonment of many mills and the ceasing of operations in the way of building new mills.

At the present time there is building a new mill for the production of news paper, with a capacity of 200 tons per day, which will be doubled as soon as the demand warrants. This mill is in the Middle West, with an unlimited supply of raw material, but with the tariff reduced it is very doubtful if capital could be interested in such an enterprise.

The attempt of part of the American publishers to have the duty taken off of paper and pulp during the last session of Congress was a very selfish movement on their part, when it is known that in the last twenty years the price of news paper has been reduced through competition and improved methods of manufacture over 30 per cent, and that where, in the same period of time, the quantity produced per year has increased over 75 per cent, it will readily be seen what a protective tariff has done for the consumer.

Under the present wise policy of this Government this industry can and will maintain the same rapid rate of growth and improvement in methods if protection is not withdrawn. There are abundant water powers, ample supplies of suitable wood and other material to increase the production thousands of tons annually, particularly in the South, where there are many undeveloped water powers, large supplies of suitable wood for the manufacture of paper and pulp, in addition to hundreds of thousands of tons of other materials which are now going to waste, such as cotton-plant stalks and seed delint, flax, cornstalks, and many other fibrous plants.

At the present time the Government is making in this city experiments with corn stalks, and from the printed reports so far they promise results that will cheapen some grades of paper over the present method of using wood fiber. It is estimated there are 150,000,000 tons available for this purpose, or 40 times as much as the annual amount of paper of all grades turned out, so that it would seem as though we still had raw material at our doors for several years to come.

We beg to call your attention to the very exhaustive statement of Arthur D. Little, official chemist of the American Paper and Pulp Association, read at the annual meeting of the association in February, 1908, a copy of which we beg leave to file with the committee.

You will see that the paper manufacturers are fully alive to the important question of raw material supply and are looking and working with a view of obtaining some material which might displace wood eventually through using some material which can be gotten from an annual crop.

In addition to the work which Mr. Little is doing, the Government is also fully alive to the possibilities of some other material. The insular service, through Col. Clarence R. Edwards, is much interested in the question of bamboo as a raw material, which grows luxuriantly in the Philippines and is an annual crop.

The earliest record we have of paper is from the Egyptians, who used papyrus. Since then many different materials have been used, as the necessity of the increasing population of the world needed

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paper as they became educated, it being truly said that "the consumption of paper is the measure of the people's culture."

After the Egyptian raw material probably came the use of old rags. As the people became more civilized they wore clothes, and these old clothes were made to do their duty in the shape of new paper. Not many years ago the supply of rags became inadequate to supply the demand for paper; then came in straw pulp, made from wheat and rye straw; then came the invention of the present raw material in the shape of mechanical wood pulp, which is so much cheaper than the straw pulp that that process was abandoned. Now there is great fear on the part of a few of the newspaper publishers particularly that the supply of wood is inadequate and that paper and pulp should be put on the free list, so that the markets of the world shall be thrown open as far as the American manufacturer is concerned.

The history of the paper business shows that the American people are well able to cope with any conditions which may confront them, and we firmly believe that before the question of raw material shall become acute, other materials will be found to take the place of pulp wood. There are hundreds of thousands of tons of material going to waste to-day which may become a good paper-making material as soon as a process is discovered for handling the material cheaply, and this process is sure to come, as all the others have before.

The price of paper has been steadily decreasing for years, and to-day, although the price is higher than it was two or three years ago, the actual figures show that this increase comes particularly from an advance in wages and material used about a paper mill; not only the raw material, but everything that is used in a mechanical way to run a manufacturing plant.

To-day one of the most successful mills in the United States is equipping a department to use esparto grass, which is to be brought into this country in shiploads from Algiers and made into pulp and paper in this country. This is almost a case of history repeating itself and going back to the Egyptian times, but it only goes to show that the American manufacturer is quite alive to all conditions and possibilities.

With something like four million tons of annual product, the paper industry furnishes to the railroads in the way of freight and raw materials upward of 20,000,000 tons of freight annually. They consume 3,000,000 tons of coal, all from our domestic mines. They sustain a large number of establishments which supply them with machinery and supplies used only in paper mills. They furnish employment directly to over 75,000 men in their plants and probably 40,000 men in getting out the raw material in the woods and mines, besides indirectly supporting an army of men engaged in supplying them with the material which they use in their manufacturing departments.

For every dollar which the consumer pays for paper it is estimated that nearly 70 cents goes to the wage fund of the country. In many sections of the country they have been the pioneers, building villages, developing power, moving in population to places that have heretofore been waste, necessitating the building of railroads for carrying material and supplies.

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From Bulletin 88, issued by the Department of Commerce and Labor, Bureau of the Census, of 1905, we find total water power used in all industries was, roughly, 1,648,000 horsepower, of which the paper and pulp manufacturers used 718,000, or something like 43 per cent of the total amount developed at that period.

The protective tariff that we have been working under has stimulated the building of paper and pulp mills to an enormous extent. Instead of increasing the price to the consumer, it has stimulated overproduction. The price has steadily gone down in twenty years under a protective tariff from 3½ cents a pound down to less than $2 per hundredweight.

During the last year the cost to manufacture has increased considerably both as to labor and as to every article which goes into the manufacture of paper or into the maintenance of the plant.

The contention of the consumer that the manufacturers are reaping an undue profit was thoroughly refuted at the hearings before the select committee in Washington during the last session of Congress, when full reports were made by the paper manufacturers of their increased cost of production. It was shown by tabulating the results of the news mills reporting that the increased cost of production in the last six years was about 35 per cent.

We desire to file with this statement of facts information as to the relative wages paid employees in paper mills in foreign countries as compared with men in the American mills filling the same positions and doing the same work under not as good manufacturing conditions as are found in the paper mills of this country. All the mills in the United States have practically been built during a period covered by a protective tariff.

The capital invested in the plants of course is much greater from the fact that everything that has gone into these plants was protected, and it would be very unfair to put a tax upon the manufacturer for every one article which he uses and then throw his product open to the manufacturers of the world to compete with, with their cheap labor and material.

In going over the schedule of the Dingley tariff, there is no one article in the free list which goes into the manufacture of paper or pulp or among the articles specified in the reciprocity act of 1897 except the raw material; many of the articles are highly protected, for instance:

	Per cent.
Wool felts	100
Cotton felts	45
Hemp twines	100
Alum	30
Soda ash	25
Wire cloth	35

In addition to a heavy duty on machinery, castings, and many other articles used directly and indirectly in the manufacture of paper.

In addition to Canada a menace are the older countries, which are endeavoring to keep their laborers at home by going into the manufacturing business on a scale never before attempted in those countries. Norway and Sweden are not only able to produce more cheaply on account of labor conditions, but they have ample raw material right at their doors. Russia, with her pauper labor and endless

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forests, is going into the manufacture of sulphite pulp on a large scale. How long would it be, with the American market thrown open, before she would also make and send the finished paper in here?

To-day the foreign pulps have taken the place of our own to an extent that is keenly felt by our own manufacturers and has thrown many men out of steady employment.

Some of the lower grades of paper—for instance, building or saturating paper—are made from the lowest grade of rags. The domestic collections do not supply the American mills and large portions are imported from the poorer foreign countries. These rags come in without duty, but should the tariff be taken off this particular grade of paper—it being now only 10 per cent ad valorem—these manufacturers would be forced to discontinue the manufacture of this grade of paper, and as their mills are not capable of making any other grade with profit it would mean their extinction, throwing out of employment thousands of men, not only those actually engaged in the paper mills, but an army of the poorer class of people in all the large cities who collect this lower grade of material, and for which this is the only use. In many cities these refuse rags are gathered by the municipality in sorting plants, and in this way it gives employment to a great many poor people who sort them, thereby giving employment to an almost helpless class of citizens to earn a small living.

There should be in force an antidumping law to protect the American manufacturer, the same as other countries have.

To-day much of the pulp, principally sulphite class, is being put in here at probably lower figures than it can be made for at home, so low that the American manufacturers can not compete.

It would be impracticable to admit print paper and wood pulp free of duty, or even wood pulp, without disturbing the whole paper-making industry.

Raw material in the shape of wood comes in free of duty. Pulp made from this is a large component part of paper. The pulp-making industry has a large capital investment and employs thousands of men and is entitled to protection in the same ratio as paper, as it is not raw material.

It must be remembered that the newspapers have to a certain extent the ear of the American people and they have emphasized unduly the quantity of wood being used for paper and pulp, and without investigating the matter or taking steps to enlighten himself on the subject the average reader supposes that we are the ones who are devastating the forests of this country. By referring to the Forest Service and reports of 1906 it is shown that less than 2 per cent of the annual consumption of all kinds of wood is used for pulp, and that a large percentage of that was unsalable for any other purpose than pulp on account of the size and its being limbs and tops of trees, so it is fair to suppose that less than 1 per cent really of the annual consumption is actually used for pulp and paper and much of it would be wasted entirely if it were not used for this purpose.

This same service shows that wood other than spruce is increasing in use very rapidly and that spruce is really being relatively less used than it has been, which confirms our contention that the manufacturer will use what is cheapest and most necessary for the successful operation of his plant.

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Reports made by this bureau estimate that we export from this country to foreign countries 5 per cent of the total consumption, while paper-pulp manufacturers use less than 2 per cent. In other words, if we should stop the exportation of lumber, it would more than make up for the amount used in pulp.

There is cut for railroad ties something like 7 per cent of the total cut of lumber. It is estimated that firewood for domestic service amounts to twenty-five times as much as is used for pulp. So taking these figures, even if they are estimates, they show that the paper man has been criticized for something he is not responsible for. While many of these figures are estimates, the quantities used by the pulp man can be better checked as to quantity than any other use, as it is pretty well known how much wood it takes to make a ton of pulp or paper and how much of these two commodities are used per year.

The value of the importation of wood into this country on a certain valuation in 1907 was, roughly, $2,800,000. The exports of forest products for the same period was $33,000,000.

The average freight rate from Canadian mills to the markets of the United States is about the same as it is from the shipping points of the American mills to the same markets, thus showing that with no duty to pay they would be practically on the same basis as to cost of delivery.

In 1907 there appears to have been a concerted movement on the part of many Canadians to prohibit by law the exportation of any wood for pulp purposes from the Dominion of Canada. The interviews, as printed by the Globe, of Toronto, from time to time do not show that all producers of lumber were in favor of this action, and we quote from an interview with the Hon. Senator Edwards, head of the W. C. Edwards & Co. (Limited), manufacturers of lumber, who have immense establishments at Ottawa and Rockland, as follows:

The senator favored a policy of making all the forest lands available for operation, and their intelligent working under proper regulations and supervision, as distinct from the idea of some people that the plan to be adopted was the clearing off of the forests as rapidly as possible, with a view to making room for settlement. There was no reason why, under an intelligent system, the forest crop of Canada, as it might be called, should not be everlasting. His company, he said, was going to build in the Gaspe district of the St. Lawrence a pulp mill and lumbering establishment where these ideas would be carried out to a still more scientific extent than was now the case on their limits. Under the direction of a forester of standing and experience it was intended to show that it would be practicable to keep the establishment going by simply cutting the annual forest growth.

On the other hand, Sir William Van Horne, largely interested in the largest paper-making plant in Canada, at Grand Mere, Quebec, takes the other side of the question, and we quote from his remarks, as follows:

Another important American holding in Canada is that of the Burgess Sulphite and Fiber Company and the Berlin Mills Company, of Berlin, N. H. I do not know the extent of the timber limits belonging to these companies, but it is large, and they have acquired the Lachute water power, on the St. Maurice River, for the purpose of a "rossing mill" for barking pulp wood to be shipped to the New Hampshire mills, the barking being done to save the freight charges. The Battle Island Sulphite and Fiber Company, of Oswego, N. Y., also holds limits on the St. Lawrence, the extent of which I do not know. Many paper concerns in the United States, besides those I have mentioned, are buying Canadian pulp wood, ground pulp, and sulphite fiber to eke out their supply. Without the Canadian supply of pulps and pulp wood many of the American mills would have to shut down very soon. If they can not get our

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pulps or pulp wood they must eventually come to Canada to make paper, and every paper mill established in Canada means a town of from 5,000 to 15,000 people, and a great addition to the wealth of the country.

* * * * * * *

I should not dare to estimate the value of Canda's spruce timber ten years hence if some policy were adopted by the dominion or the provincial governments which would, directly or indirectly, prevent the export of raw wood. The American owners of Canadian limits estimate the possibilities as highly as I do. They do not hesitate to buy Canadian timber limits, because they know that in the event of the adoption in Canada generally of a policy like that of Mr. Hardy's in Ontario, they would profit immensely from their timber holdings. I hold that this tremendously valuable asset should be preserved in every possible way; that the Provinces having timber should regard it as a permanent crop and apply well-considered regulations to the cutting from crown lands, with a view to promoting the growth of the young timber and to the prevention of forest fires, and that the areas reserved for the growth of timber should be carefully marked out and withdrawn from settlement. This would leave an abundance of land available for settlement for a long time to come in all of the timbered districts, for there are everywhere areas which have been either burnt over or cut so clean as to leave no hope of a new growth.

In the Province of Quebec, and perhaps this is true of other Provinces, a real or pretending settler may take up land for farming purposes in any timber limit, and in such a case the owner of the license is given one year within which to cut such timber as the law permits to be cut from crown lands, after which the settler may cut the rest. There is no reason to believe that in the Province of Quebec, if not elsewhere, lands have been so taken by pretending settlers at the instance of jobbers in logs or pulp wood, the settler abandoning the land as soon as he has cut all that he finds worth cutting.

I do not think there would be any danger of retaliation on the part of the United States in the event of some such policy as I have outlined being carried out. I can see no possible ground for retaliation on the part of the United States in view of the precedents which they have themselves established, and I can think of no form of retaliation that would not be much more damaging to themselves than to us, and they are not given to foolishness of that kind. So far as tariffs go, I do not see that they could make them worse, for the Dingley tariff, which is still in force, was framed for the purpose of excluding everything from Canada which the United States did not need, such as timber, pulp wood, ground and sulphite pulp, etc.

We do not agree fully with Sir William, but the fact of free paper and pulp would mean the building of large plants in Canada, which, in the course of a few years, would put the American manufacturer out of business through overproduction and their inability to manufacture cheaper.

The manufacturers of paper and pulp believe that justice will be done to the industry by your committee. We believe the facts brought out by the so-called "Mann Investigating Committee" will be of very great service to your committee in arriving at a conclusion as to what is due to the industry in the United States as a whole. We desire to furnish your committee with any information in our power that you may wish, and shall hold ourselves in readiness at any time to respond to any inquiry you may make, either by letter or in person.

AMERICAN PAPER AND PULP ASSOCIATION,
By ARTHUR C. HASTINGS, *President.*

MEMBERS OF THE AMERICAN PAPER AND PULP ASSOCIATION.

American Writing Paper Company	Holyoke, Mass.
Ancram Paper Company	New York City.
Bardeen Paper Company	Otsego, Mich.
Bare, D. M., & Co	Roaring Springs, Pa.
Battle Island Paper Company	Fulton, N. Y.
Bedford Pulp and Paper Company	Richmond, Va.
Beckett Paper Company	Hamilton, Ohio.
Bergstrom Paper Company	Neenah, Wis.
Bryant Paper Company	Kalamazoo, Mich.

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Berlin Mills Company	Berlin, N. H.
Brown, L. L., Paper Company	Adams, Mass.
Brownville Board Company	Brownville, N. Y.
Brownville Paper Company	Brownville, N. Y.
Burgess Sulphite Fiber Company	Boston, Mass.
Carew Manufacturing Company	South Hadley Falls, Mass.
Carthage Sulphite Fiber Company	Carthage, N. Y.
Carthage Tissue-Paper Mills	Carthage, N. Y.
Central Paper Company	Muskegon, Mich.
Champion Coated Paper Company	Hamilton, Ohio.
Champion-International Company	Lawrence, Mass.
Cheboygan Paper Company	Cheboygan, Mich.
Chemical Paper Company	Holyoke, Mass.
Cherry River Paper Company	Philadelphia, Pa.
Cleveland-Akron Bag Company	Cleveland, Ohio.
Cleveland Paper Manufacturing Company	Cleveland, Ohio.
Cliff Paper Company	Niagara Falls, N. Y.
Columbian Paper Company	Buena Vista, Va.
Combined Locks Paper Company	Appleton, Wis.
Consolidated Water Power and Paper Company	Grand Rapids, Wis.
Continental Paper Bag Company	New York City.
Crane, Z. & W. M.	Dalton, Mass.
Crane Bros.	Westfield, Mass.
Crane & Co.	Dalton, Mass.
Crivitz Pulp and Paper Company	Crivitz, Wis.
Crocker-Burbank Company	Fitchburg, Mass.
Crocker-McElwain Company	Holyoke, Mass.
De Grasse Paper Company	Carthage, N. Y.
Dells Paper and Pulp Company	Eau Claire, Wis.
Dexter, C. H., & Sons	Windsor Locks, Conn.
Dexter Sulphite Pulp and Paper Company	Dexter, N. Y.
Diamond State Fiber Company	Bridgeport, Pa.
Diana Paper Company	Harrisville, N. Y.
Dill & Collins Company	Philadelphia, Pa.
District of Columbia Paper Manufacturing Company	Washington, D. C.
Eastern Manufacturing Company	Bangor, Me.
Eaton-Dikeman Company	Lee, Mass.
Edwards Manufacturing Company, The John	Port Edwards, Wis.
Emerson Paper Company	Wendell, N. H.
Esleeck Manufacturing Company	Turners Falls, Mass.
Everett Pulp and Paper Company	Everett, Wash.
Falls Manufacturing Company	Oconto Falls, Wis.
Finch, Pruyn & Co.	Glens Falls, N. Y.
Flambeau Paper Company	Park Falls, Wis.
Fletcher Paper Company	Alpena, Mich.
Flint, Wyman & Sons Compnay	Bellows Falls, Vt.
Fox River Paper Company	Appleton, Wis.
Garrett, C. S., & Son Company	Philadelphia, Pa.
Gilbert, Frank, Paper Company	Waterford, N. Y.
Grandfather Falls Company	Merrill, Wis.
Hamilton & Sons, W. C.	Philadelphia, Pa.
Hammermill Paper Company	Erie, Pa.
Hampshire Paper Company	South Hadley Falls, Mass.
Hartje Paper Manufacturing Company	Steubenville, Ohio.
Hennepin Paper Company	Minneapolis, Minn.
Hinckley Fiber Company	Hinckley, N. Y.
Hollingsworth & Whitney Company	Boston, Mass.
Hubbard, A. H., & Co.	Norwich, Conn.
Ingalls & Co.	Castleton, N. Y.
Interlake Pulp and Paper Company	New York City.
International Paper Company	New York City.
Itasca Paper Company	Grand Rapids, Minn.
Jessup & Moore Paper Company	Philadelphia, Pa.
Kalamazoo Paper Company	Kalamazoo, Mich.
Katahdin Pulp and Paper Company	Lincoln, Me.
Keith Paper Company	Turners Falls, Mass.

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Kimberly-Clark Company	Neenah, Wis.
King Paper Company	Kalamazoo, Mich.
Knowlton Brothers	Watertown, N. Y.
Lang, John, Paper Company	Philadelphia, Pa.
Lewis, J. P., Company	Beaver Falls, N. Y.
Linddaues Pulp Company	Kaukauna, Wis.
McEwan Brothers	Whippany, N. J.
Mead Pulp and Paper Company	Dayton, Ohio.
Marinette and Menominee Paper Company	Menominee, Mich.
Megargee Paper Mills	Philadelphia, Pa.
Menasha Paper Company	Menasha, Wis.
Michigan Paper Company, The	Plainwell, Mich.
Michigan Sulphite Fiber Company	Port Huron, Mich.
Mittineague Paper Company	Mittineague, Mass.
Monadnock Paper Mills	Bennington, N. H.
Monarch Paper Company	Kalamazoo, Mich.
Moorehouse, R. T	Bridesburg, Philadelphia, Pa.
Mount Tom Sulphite Pulp Company	Mount Tom, Mass.
Munising Paper Company	Munising, Mich.
Nashua River Paper Company	East Pepperell, Mass.
Nekoosa-Edwards Company	Port Edwards, Wis.
New Haven Pulp and Board Company	New Haven, Conn.
Newton Falls Paper Company	Watertown, N. Y.
New York and Pennsylvania Company	New York City.
Niagara Paper Mills	Lockport, N. Y.
Nixon, M. & W. H., Paper Company	Philadelphia, Pa.
Northern Paper Mills Company	Green Bay, Wis.
Northwest Paper Company	Cloquet, Minn.
Odell Manufacturing Company	Boston, Mass.
Orono Pulp and Paper Company	Bangor, Me.
Oswego Falls Pulp and Paper Company	Fulton, N. Y.
Oxford Paper Company	Portland, Me.
Parson Pulp and Paper Company	Philadelphia, Pa.
Parsons, W. H., & Co	New York City.
Patten Paper Company	Appleton, Wis.
Peninsular Paper Company	Ypsilanti, Mich.
Penobscot Chemical Fiber Company	Boston, Mass.
Pettebon-Cataract Company	Niagara Falls, N. Y.
Plover Paper Company	Stevens Point, Wis.
Port Edwards Fiber Company	Port Edwards, Wis.
Poland Paper Company	Mechanic Falls, Me.
Progressive Pulp and Paper Company	Plattsburg, N. Y.
Raquette River Paper Company	Potsdam, N. Y.
Raymondville Paper Company	Watertown, N. Y.
Reading Paper Mills	Philadelphia, Pa.
Rhinelander Paper Company	Rhinelander, Wis.
Richmond Paper Manufacturing Company	Richmond, Va.
Rising, B. D., Paper Company	Housatonic, Mass.
Riverside Fiber and Paper Company	Appleton, Wis.
Robertson Brothers	Hinsdale, N. H.
Rogers, J. & J., Company	Ausable Forks, N. Y.
Rogers Paper Manufacturing Company (Incorporated), The	South Manchester, Conn.
St. Croix Paper Company	Woodland, Me.
St. Regis Paper Company	Watertown, N. Y.
Shawmut Manufacturing Company	New York City.
Smith Paper Company	Lee, Mass.
Strange Paper Company, The John	Menasha, Wis.
Taggart Brothers Company	Watertown, N. Y.
Taylor-Burt Company, The	Holyoke, Mass.
Thilmany Pulp and Paper Company	Kaukauna, Wis.
Ticonderoga Pulp Paper Company	New York City.
Tileston & Hollingsworth Company	Boston, Mass.
Traders' Paper Board Company	Bogota, N. Y.
Union Bag and Paper Company	New York City.
United Box Board and Paper Company	New York City.

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Victoria Paper Mills Company	Fulton, N. Y.
Wanaque River Paper Company	Wanaque, N. J.
Warren Manufacturing Company	New York City.
Watab Pulp and Paper Company	Sartell, Minn.
Wausau Paper Mills Company	Brokaw, Wis.
Weeks, F. G	Skaneateles, N. Y.
West End Paper Company	Carthage, N. Y.
Weston, Bryon Company	Dalton, Mass.
West Virginia Pulp and Paper Company	New York City.
Wheelwright, Geo. W., Paper Company	Boston, Mass.
Weeks, Charles G	Skaneateles, N. Y.
Willamette Pulp and Paper Company	Oregon City, Oreg.
Wisconsin River Pulp and Paper Company	Stevens Point, Wis.
Wisconsin Tissue Paper Company	Appleton, Wis.
Woronoco Paper Company	Woronoco, Mass.
Worthy Paper Company	Mittineague, Mass.
York Haven Paper Company, The	New York City.

Rates of wages in foreign and United States mills making high-grade sulphite pulp.

[The wages per week have all been figured on the same number of hours per week. In some instances the wages for Europe have increased somewhat, these men inform us.]

Name.	Present position.	Wages per week.	European position.	Wages per week.	Per cent of American wages.
Albert Engler	Machinist	$16.50	Machinist	$7.50	0.45
Chas. Helwig	Machine tender	14.40	Machine tender	7.50	.52
Frank Kabolnick	Cook	16.80	Cook	5.04	.30
Otto Richert	Reel tender	11.40	Beater man	2.52	.22
Jake Glombowski	Bin trimmer	9.60	do	2.52	.26
Jos. Glombowski	Cook's helper	10.60	Rag cutter	2.60	.25
Martin Zellan	Barker	9.60	Straw cooker	3.60	.38
M. Minkowski	Screen helper	11.40	Watchman	3.00	.26
John Feidler	Cook's helper	10.80	Bleach man	2.70	.25
Albert Seig	Laborer	9.00	Laborer	3.78	.42
Michial Kern	Digester man	12.00	Fireman	5.04	.42
John Ordowski	Laborer	9.00	Laborer	3.75	.42

Scotch mill as compared with Mechanicsville mills.

[Average pay per two weeks (twelve days).]

	Scotch mill.	Mechanicsville mill.		Scotch mill.	Mechanicsville mill.
Beater men	$20.00	$46.08	Good journeymen	$15.00	$36.00
First assistant	12.50	22.20	Apprentices	6.00	34.20
Second assistant	8.75	22.20	Head fireman	17.50	42.00
Machine men	24.00	56.16	First assistant	11.25	28.80
First assistant	12.75	30.24	Head finisher	20.00	49.20
Second assistant	8.50	27.36	Finishing girls	8.00	15.00
Grass boiler man	17.50	28.80	Tyers up	10.00	.....
Assistant	10.00	21.00	Outside labor	9.00	18.00
Cutter men	18.75	40.20	Supercalender man	17.50	29.04
Assistant	7.50	19.20	Helper	8.00	21.00
Cutter boys	4.00	15.00	Steam engineers	20.00	33.00
Head machinist	30.00	45.00			

Report of Arthur D. Little, Official Chemist of the American Pulp and Paper Association.

Mr. President and Members of the American Paper and Pulp Association:

The year just ended has been an uneventful one in the chemical technology of pulp and paper making and has been unmarked by the appearance of any new chemical process or method of the first importance. The following matters, however, deserve brief mention:

The year has shown an increasing tendency in the sulphite process toward the use of stronger liquors, particularly in Sweden, where liquors carrying 5

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per cent or more of total sulphurous acid are being employed to advantage in respect of improved quality of product and a better recovery of gas.

Concurrently with the foregoing there has developed a tendency toward shorter cooks, and there is no longer any doubt that pulp of first-rate quality can be produced in a cook of seven hours total duration or even less. This means, of course, considerably increased output from the same plant.

The year has also witnessed the rapid introduction of new types of sulphur burners of large capacity. These are either of the rotary or agitating types, and by their better control of the air supply permit the workmen to maintain a much higher content of sulphurous acid in the burner gas. Gases containing 16 per cent of sulphurous acid are now not uncommon.

With the more general recognition of the necessity for better control of furnace gas and the advantages derived from a higher content of sulphurous acid, there have come from Europe proposals to utilize the sulphurous acid in the absorption system under a considerable pressure. Harpf points out that under 60 pounds pressure it is easy to dissolve 8.14 per cent of sulphurous acid in water, even when no lime is present, as against 1.63 per cent for water under the ordinary atmospheric pressure.

An important new departure in the sulphite process is the employment of superheated steam in cooking. This is coming into extensive use in Germany and Sweden and offers a number of important advantages. It saves steam, prevents the undue dilution of cooking liquors, enables the cook to be made in shorter time, and permits the use of weaker liquors than usual in the summer time, when it is ordinarily difficult to keep the liquors up to strength. There has been nothing whatsoever to show that either the strength of the fiber or its bleaching quality are influenced at all adversely.

The year has seen some measures of success in the difficult problem of utilizing the waste sulphite liquor. Some inconclusive experiments have been made looking to the employment of the waste liquor for keeping down dust on roads. Considerable progress is to be recorded in the utilization of the concentrated liquor as a binding material, as, for example, for molder's sand, and there is also good promise of the successful utilization of the waste liquors as a supplementary tanning agent.

Perhaps the most significant development of the year has been the introduction to this country through importation of considerable quantities of kraft paper. The manufacture of this paper has been very recently worked out in Sweden through the use of pulp prepared from coniferous woods by a modification of the sulphate process. The wood is somewhat undercooked in a liquor which contains from one-fourth to one-third black liquor from a previous cook. The resultant pulp has a dark but pleasing and characteristic brown color and is used for making paper immediately after washing and without admixture of other stock. As its name implies, the striking quality of kraft paper is its great strength, which renders it available for many special uses of importance. The strength ratio of kraft paper, as shown by our tests, is about 1.15 as contrasted with about 0.85 for a good quality all-sulphite paper.

The special significance and technical importance of kraft paper is found in the direct evidence it furnishes that the possibilities of all-wood papers have not yet begun to be appreciated. Another cellulose industry, that of fine cotton textiles, has within the last few years been revolutionized as the result of the recognition and utilization of the properties of the cotton fiber substance during treatment with strong caustic soda. I refer, of course, to the process of mercerization as now generally applied to the production of cotton yarns, exhibiting a splendid silky luster. The general trend of development in paper making indicates that it is well within the range of probabilities that an analogous revolution may be impending in the treatment and utilization of chemical wood fiber. The production of kraft papers has shown that a profound variation in the properties of the fiber and a variation along new lines may be established by a minor change in the conditions of the cooking process. Other variations quite as profound are now known to be set up by the hydration of the fiber substance brought about by beating under stone rolls, as exemplified in the production of the transparent pergamyn and glassine papers. This hydration effect, for instance, is unquestionably susceptible of a much wider range of application than it has yet received even in Germany, while in this country it is scarcely utilized at all. The same effect, although brought about by different methods, appears in the curiously parchment-like papers recently produced from the pith cells of both the cornstalk and the waste sugar cane chips known as "bagasse." In these cases the walls of the pith cells are of such delicacy that the cellulose is hydrated during the purification process of boiling with caustic alkali, and the cell walls are therefore superficially fused together during the process of making and drying the paper. This explains the curious result that a paper of remarkable strength and toughness may be prepared from cells so short and wide that they can not properly be regarded as fibers at all. To this hydration effect upon the pith cells must mainly

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also be ascribed to remarkable qualities of the bagasse boards now being manufactured in Louisiana by the Lee process, in which the bagasse chips are undercooked in a liquor prepared from saccharate of lime made by mixing lime and molasses with water.

As bearing directly upon the development in this country of new types of paper I may be permitted to point out the desirability of a better recognition here of the merits of stone roll beating engines and the edge runner or kollergang for working up undercooked pulps for the production of papers of exceptional strength.

The constantly rising price of wood and the growing scarcity of hard fiber wastes available for paper making have led during the year to a continued and persistent search for new fiber and new sources of supply. Excellent papers standing midway in properties between rag and wood papers have been prepared from cornstalk by cutting out the nodes and slicing off the outer shell to separate the region carrying the fiber from the pith. The shell is reduced to fiber by boiling with caustic soda. The pith, if cooked by itself, yields the parchment-like paper previously referred to, while the entire stalk, except the nodes, yields a rather hard paper of intermediate quality. Papers of generally similar character have been made from bagasse.

The immense quantity of cotton stalks annually available in the South where, on the average, 22,750,000 tons are each year burned or plowed under or otherwise wasted, has caused this material to be looked upon as a possible source of stock for the lower grades of paper. Several processes for reducing the stalks have been proposed and attempts to treat the stalks by the sulphite process are now under way in the government laboratory at South Boston. The subject has an especial economic interest in view of the extensive ravages of the cotton boll weevil, the damage from which last year is estimated at $25,000,000. Any method of utilization which would put a value on the stalks sufficient to cause the farmers to cut and remove them from the fields would go very far toward checking the depredations of this insect, and thus save a large proportion of the great sum now lost.

Projects for utilizing peat as paper stock come up perennially, and during the past year an unsuccessful attempt has been made at Celbridge, Ireland, to manufacture paper from this material. I believe it may fairly be said that on account of the shortness and lack of strength and chemical condition of the fibers which have survived decay in peat, it is hopeless to expect to make a useful paper from peat without a very large admixture of other stock. Upon the other hand, it does seem to be well adapted to the manufacture of boards of excellent quality, and this manufacture has ecently been established in Michigan.

Actuated by a desire to open up new agricultural possibilities for its colonies, and at the same time to supply British paper makers with cheaper raw material, the British Government commissioned the English paper expert, Mr. R. W. Sindall, to make a study of the subject in India and other colonies. In his recent report Mr. Sindall urges the utilization of bamboo and rice straw. It will be remembered that many years ago Mr. Thomas Routledge, to whom the introduction of esparto was due, brought out a monograph on bamboo as a paper stock, and printed the pamphlet on an excellent quality of paper made wholly from bamboo. It should be pointed out, however, that the length and character of fiber in both bamboo and rice straw are such as to preclude the use of these materials as substitutes for the wood of the cone-bearing tree for pulp making.

An important step in the interests of American paper makers has been taken during the year by the United States Government in establishing under the auspices of the United States Forest Service a model sulphite pulp mill and testing laboratory at South Boston, Mass. This laboratory will be quite fully described by Dr. Arthur L. Dean, of the Forest Service, in the convention number of the Paper Trade Journal, and I need therefore only say that there is every prospect that the work of the laboratory will extend the range of usefulness of the wood fibers by demonstrating that many woods besides those now utilized are immediately available for paper making and will yield pulps varying so much among themselves in character as to permit their advantageous use in many different sorts of paper.

In 1884, when the sulphite process was first put in commercial operation in the country, in the mill of the Richmond Paper Company, large quantities of poplar were reduced to pulp by the sulphite process. Sulphite poplar has properties which make it an especially desirable stock and the market would undoubtedly take a considerable quantity of this pulp if sulphite pulp makers did not so universally confine their output to the fiber of coniferous trees. It is beginning to be recognized that the southern gum woods and the tupelo are admirably adapted for the production of sulphite fibers of the general character of sulphite poplar, while the woods themselves are so cheap and available in such great quantity that it is practically certain that sulphite pulp made from them will, before long, be a factor in the industry.

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In Germany a new brown pulp has appeared, which stands between steamed ground wood and sulphite in its paper-making qualities. It is made at the plant of Prince Donnersmarck, at Krappitz, by grinding bolts of wood which have been cooked with waste soda liquor.

There has been, during the year, a greatly increased use of special rosin sizes manufactured outside the mill, and these sizes are made by methods which insure a much higher content of free rosin than the usual mill size. This increase in free rosin is unquestionably an advantage, particularly in most cases where snap and rattle are desired in a paper, and it permits a substantial reduction in the amount of alum used. The steady rise in the price of rosin itself has led to the devising of new methods of extraction from stumps and wood previously wasted, and there is good reason to believe that considerable quantities of rosin will be available from these hitherto neglected sources.

The year has seen some notable additions to the literature of cellulose, and among the publications in English should be mentioned "Chapters on Paper Making," by Clayton Beadle; "Paper Technology," by R. W. Sindall; and "Researches in Cellulose, 1900–1905," by Cross and Bevan. The two former books will be found helpful by any paper maker. The one last mentioned, while lacking the same general interest, is of the first importance to cellulose chemists, and is particularly noteworthy for the radical changes in the theory of cellulose and the method of attack of cellulose problems now laid down by these distinguished chemists who have done so much to establish the chemistry of cellulose as it is known to-day. They now take a distinctly agnostic position which involves the recognition of current views of the constitution of cellulose as inadequate, and they lay particular stress at this time upon the colloidal character of cellulose as influencing its chemical properties.

It is appropriate at this point to mention the newly organized Verein der Zellstoff und Papier Chemiker, of which your chemist has the honor to be a member. Although the society has its headquarters at Berlin, it is cosmopolitan in its membership, and should prove an efficient agent in the development of the chemical technology of pulp and paper making. Another influence in the same direction should come from the new journal, Chemical Abstracts, published by the American Chemical Society, and which will contain, grouped under their appropriate subjects, abstracts of all chemical articles containing new matter wherever published. The subject of cellulose and paper making has been assigned to the reporter.

Considerable work has been carried on during the year in paper testing and the study of special problems in paper making by the United States Bureau of Standards and the recently established paper and leather laboratory of the United States Department of Agriculture. The work will undoubtedly lead to greater definiteness and rigidity in the government specifications for supplies of paper. No report on the results obtained has yet been issued by either bureau.

It becomes increasingly evident that German paper-testing methods, although essential for purposes of research, are not well adapted to the requirements of commercial practice in this country. Testing methods and machines to be generally useful here must yield their results quickly and with a minimum of effort, and for most purposes a reasonably approximate figure which can be secured almost at once is more useful than extreme accuracy obtained at the expense of a disproportionate expenditure of time and labor. In place of the German "breaking length" as a measure of the strength of papers, I have therefore been led to propose and would urge you to adopt what I have called the "strength ratio" of paper—that is, the quotient obtained by dividing the figure for strength, in pounds per square inch as registered by the Mullen tester, by the thickness in ten-thousandths of an inch as given by a micrometer. For example, a paper testing 36 pounds on the Mullen machine and which had a thickness of thirty-six ten-thousandths of an inch would have strength ratio of 1,000. A paper of the same thickness testing 18 pounds would have a strength ratio of 0.500, and so on. The advantage of this way of stating results is that these ratios are fairly constant for papers of the same quality, and are easily remembered, whereas it is almost impossible to keep in mind the present figures for the strength tests of the many different thicknesses of even one quality of paper. As indicating the general order of these ratios, the following tabulation of our results to date may be of interest:

	Strength. Ratio.
News and cheap books, run from	0.20 to 0.40
Better grades of book	0.40 to 0.75
Flats	0.70 to 0.90
Cheaper bond papers	0.65 to 1.00
Better grades of bond	1.00 to 2.00
Ledger papers	1.00 to 2.00
Good grades of manila	1.00 to 1.25

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Different weights of papers of the same grade approximate closely to the same strength ratio. For example, in case of a bond paper made in a number of different weights the ratios for 13, 14, 16, 20, and 24 pound folios were, respectively, 1.05, 1.00, 1.07, 0.98, and 1.03.

In concluding this report I desire to say that I will be glad to receive the authorization of the association to conduct during the ensuing year on its behalf a comparative study of the various methods of sampling wood pulp employed in the different mills in this country and abroad. To this end I have collected during the past year a considerable amount of data on these different methods and this has served to bring out in a striking way the utter lack of uniformity in this important work. Some of the methods in vogue are unquestionably subject to grave error and the establishment of a uniform official method would remove much friction between buyer and seller. At present we have the strip method, the quarter sheet method, the whole sheet method, the whole bale method, the wedge method, the punch method, and the disk method, not to mention the numerous variations of each general method. In some cases it is the practice to sample 1 bale in 10, in others 1 in 20, 1 in 25, and even 1 in 50, as now rather generally obtains in Europe. To secure the data necessary to a proper presentation of the whole matter and afford a basis for recommendations looking to the adoption of an official method, it would seem desirable that your chemist be authorized to send out blanks in his official capacity to importers, makers, and buyers of the various grades of pulp, requesting complete and detailed statements as to the methods employed by them or their agents in sampling the pulp they ship or receive. The more promising of these methods should then be made the subject of comparative tests to determine their relative accuracy. A number of such tests have already been carried out during the past year in my laboratory, but in order to avoid premature conclusions I refrain from reporting on them at this time.

COPY OF A RESOLUTION PASSED AT THE MEETING OF FEBRUARY 7, 1907.

In accordance with suggestions made in the last paragraph of Mr. Little's report the following resolution was passed at this meeting:

"*Resolved*, That the official chemist of the association be, and he hereby is, instructed and empowered to make during the ensuing year a comparative study of the various methods of sampling and testing wood pulp and fiber and to request of buyers and sellers of pulp and fiber such information as they may be willing to furnish as to their methods, with a view to recommending at the next meeting of the association a method for adoption as the official method for such sampling and testing."

Freight rates.

To—	From—				
	Niagara Falls.	Chisholm, Me.	Hudson River.	Watertown.	Grand Mere, Quebec, Canada.
	Cents.	*Cents.*	*Cents.*	*Cents.*	*Cents.*
New York	13	17	13	13	18
Boston	15	10½	15	15½	None.
Philadelphia	13	16	15	17	22
Baltimore	13	18	17	17	22
Pittsburg	10	19	15	15	17
Cleveland	8½	17	17	15	17
Cincinnati	13	15½	16	16	15½
Chicago	15	18	18	18	18
Detroit	10	17½	15	15	16
Memphis	32	34	32	32	32
Houston					91
New Orleans	31	37½	36	35	None.
Atlanta	40	45½	40	40	43½
St. Louis	18½	21	21	21	21½
Omaha	33½	36	36	36	None.
Buffalo					15

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STATEMENT OF MR. CHESTER W. LYMAN, OF NEW YORK, REPRESENTING THE INTERNATIONAL PAPER COMPANY.

Mr. LYMAN. Mr. Chairman and gentlemen of the committee, I have prepared a paper which I will read and a copy of which I will place in your hands.

Mr. GRIGGS. His speech is so prepared that we can read it.

Mr. LYMAN. I have come here voluntarily, and I would very much prefer to present our case as we have prepared it, and if you wish afterwards to ask any questions I would be happy to answer them if I can. But I have put some thought on this matter and formulated our ideas into as brief a form as possible, and it is only a matter of fifteen or twenty minutes reading it to you, and I think it touches pretty much every side of the question, and when I get through you will have a good idea of what the International Paper Company is. With your permission I will read.

(Mr. Lyman read the following document:)

STATEMENT OF THE INTENATIONAL PAPER COMPANY BEFORE THE WAYS AND MEANS COMMITTEE OF THE HOUSE OF REPRESENTATIVES REGARDING SCHEDULE M, PARAGRAPHS 393 AND 396 OF THE DUTIABLE LIST AND PARAGRAPH 699 OF THE FREE LIST OF THE TARIFF.

WASHINGTON, *November 21, 1908.*

The International Paper Company was incorporated under the laws of New York State on January 31, 1898. It took over by purchase a numl er of paper, sulphite, and ground-wood mills, also timber lands in the United States and Canada and developed and undeveloped water powers in the United States. In its organization no stock was put on the market and no commissions were paid to anyone in connection with the organization. The vendors received stock and bonds of the new company.

The company in 1907 was operating the following-named plants in the United States at the locations indicated, the year 1907 being specified because during 1908 operations were interrupted by the general business depression and a strike:

Glens Falls Mill	Glens Falls, N. Y.
Fort Edward Mill	Fort Edward, N. Y.
Hudson River Mill	Palmer, N. Y.
Otis Mill	Chisholm, Me.
Glenn Mill	Berlin, N. H.
Niagara Falls Mill	Niagara Falls, N. Y.
Rumford Falls Mill	Rumford Falls, Me.
Falmouth Mill	Jay, Me.
Webster Mill	Orono, Me.
Winnipiseogee Mill	Franklin, N. H.
Livermore Mill	Livermore Falls, Me.
Montague Mill	Turners Falls, Mass.
Lake George Mill	Ticonderoga, N. Y.
Fall Mountain Mill	Bellows Falls, Vt.
Ontario Mill	Watertown, N. Y.
Piercefield Mill	Piercefield, N. Y.
Solon Mill	Solon, Me.
Umbagog Mill	Livermore Falls, Me.
Cadyville Mill	Cadyville, N. Y.
Riley Mill	Riley, Me.
Wilder Mill	Wilder, Vt.
Gardiner Mill	South Gardiner, Me.

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West Enfield Mill	West Enfield, Me.
Milton Mill	Milton, Vt.
Watertown Mill	Watertown, N. Y.
Woods Falls Mill	Watertown, N. Y.
Underwood Mill	Faust, N. Y.
Harrisville Mill	Harrisville, N. Y.
Ammonoosuc Mill	West Milan, N. H.
Bemis Mill	Bemis, Me.

Eighteen paper mills, 8 separate pulp mills, and 4 wood-preparing mills.

In each of these places the company's mill is an important factor in the maintenance of the community, and in many of them it is the only productive agency, besides indirectly furnishing a market for the outlying farm districts. The company employs normally about 7,000 persons at its mills, besides its operations in the woods in the United States, which are estimated to employ 8,500 persons. There are thus directly and wholly dependent upon the wages paid by the company, estimating five persons to a wage-earner, 77,500 people, besides to a less extent farmers, storekeepers, manufacturers of supplies, and transportation companies.

Except for its wood operations in Canada, almost every dollar it receives is expended in the United States. The following are some of the principal items of home production consumed annually by this company:

Coal	tons..	400,000
Sulphur	do....	18,500
Lime and limestone	do....	18,000
Chemicals	do....	27,000
Construction and repair materials		$1,500,000
Paper and pulp machine supplies		$900,000
Domestic pulp wood		$5,570,000

It is estimated that it furnishes annually 2,500,000 tons of freight to the common carriers of the country.

The capital employed is represented by $22,406,700 preferred stock, $17,442,800 common stock, and $17,560,000 bonds. The stock is held by about 4,200 individuals, about one-third of whom are women. The average holding of preferred stock is 70 shares per capita, and of common stock 170 shares per capita, or at the market price of the stocks about $400 and $170, respectively.

Including operatives, stockholders, bondholders and those immediately dependent upon them, there are probably not less than 100,000 persons financially interested in the prosperity of the company, besides the communities and other industries which it helps support. On the other hand, its customers number only about 500. Most of these are conducting a very profitable business and only a very few are on record as asking for a reduction in the tariff.

In the first year of the company's existence the common stock paid three dividends of 1 per cent each. It has paid none since. The preferred stock paid 6 per cent annually until April, 1908, the April dividend and the following one in July being on the basis of 4 per cent per annum. In October, 1908, the dividend was put on the basis of only 2 per cent per annum.

In ten years its gross business has amounted to over $200,000,000, while it has paid out in dividends only $13,951,222.50, and has increased its bonded indebtedness by $6,000,000. The earnings of the

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company in excess of dividends in ten years have amounted to $7,381,083.14, an average of about $700,000 per annum, which is only 1.8 per cent upon the capital stock of the company. These surplus earnings, together with the proceeds of the sale of $6,000,000 bonds, have been used mostly in the improvement of its plants in order to keep the cost of production at the lowest possible point.

It was stated in an affidavit submitted by the company to the so-called "Select Committee of the House of Representatives" last spring (and corroborative testimony was introduced) that the assets of the company, less current liabilities, are conservatively worth $70,421,688, or an excess over both preferred and common stocks and bonds outstanding of $13,012,188.

The company owns or controls about 900,000 acres of timber lands in the United States and 3,100,000 acres in Canada. It is operating upon these lands in the United States in the most conservative manner possible, in all cases leaving the small growth for the future and avoiding all the waste possible, felling trees with the saw instead of the ax, as formerly, and using the tops of the trees to the fullest extent possible. At some points in New England it has bought abandoned farms having a young growth of spruce on them, and is holding them for its future needs. It is also making some experiments in replanting. It is holding its lands in the United States, in so far as practicable and economical, for future use. It may be added that its operations in Canada are also as conservative as conditions will allow.

It is using approximately 10 per cent of all the water power developed in the United States, according to the government census of 1905, while millions of horsepower are constantly going to waste in the rivers of this country because our industries have not developed sufficiently to utilize more than a small part of this natural resource, which is an almost unused asset.

In 1899, its first full year, the company made 380,000 tons of paper. In 1907 it made 495,000 tons, an increase of 30 per cent. It makes all the pulp required for this quantity of paper, and is thus not dependent upon any other company or any other country for any of its requirements of pulp. It does, however, get from Canada about 35 per cent of the pulp wood required, mostly from its own lands, this coming in free of duty. For the handling and transportation of this wood a large amount of money has been permanently invested, so that it may be laid down at the mills at the lowest possible cost.

In 1907, 83 per cent of its output was news paper, the balance being wrapping and miscellaneous grades. The company produces a negligible proportion of the wrapping and miscellaneous grades produced in the country. The estimated production of news paper in the United States in 1907 was 1,200,000 tons. This company's proportion, therefore, was but 34 per cent. In 1900 the percentage of the news paper output of the United States produced by the company is estimated to have been 65 per cent. It is thus seen that although the company has increased its output of news paper about 12 per cent, its proportion of the total output of the country has fallen from about two-thirds to one-third, due to the policy of devoting its energies to the production of paper at the lowest possible cost rather than to reaching out for a control of the productive capacity of the country or its markets. Considering the total value of all kinds of paper and

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pulp produced in the United States in 1905, the company produced but 10 per cent, and operated but 19 out of about 760 paper mills in the country.

Before the select committee of the House of Representatives it was shown that although the rate of wages paid had increased on an average 66 per cent since the company started and the cost of wood had increased 100 per cent, and many other items beyond its control had likewise increased in cost substantially, yet the total cost of production in 1907 had increased only 14 per cent over 1900, thus demonstrating the improvement in the efficiency of the management and plants of the company.

A compilation just made by the Department of Commerce and Labor from the typical pay-roll sheets of this company indicates that the average hourly rate of wages in the mills making news paper in 1907 was 94 per cent higher than in 1900 and the hours of service per day were 22.7 per cent lower per wage-earner.

The following table shows the wages paid in February, 1908, in a similar Canadian mill which makes news paper, compared with the wages paid by this company, showing an excess in our mills over the Canadian mill of about 50 per cent:

	International Paper Company.	Canada.
Machine tender	$0.50	$0.3542
Second hand	.33	.25
Third hand	.25	.1666
Fourth hand	.2234	.1458
Fifth hand and common laborer	.2234	.125
Average	.3035	.2083

Based upon the above rates the cost of labor per ton of paper in each country is as follows:

International Paper Company	$8.00
Canada	5.46

The Canadian mill thus has an advantage of about $2.50 per ton of paper.

All the mills of this company run on the three-shift, or eight-hour day basis, whereas all Canadian mills, as we understand, are run on the two-shift-per-twenty-four-hours basis, except in the paper machine department of three mills.

Canadian mills likewise have an advantage in the cost of the raw material. The stumpage of pulp wood in Canada, in the Province of Quebec, ranges from $1.10 per cord to $1.75 and in New Brunswick from $1.25 to $2, whereas in Maine and New York stumpage ranges from $2.50 to $3.60. This is an average for Canadian wood of $1.50 and for domestic wood of $3 per cord, an advantage of $1.50 per cord in favor of Canadian stumpage.

The labor in the woods is also about 33 per cent cheaper in Canada than in the United States, as was shown before the Mann investigating committee, pages 1041 to 1045.

To the extent to which we use Canadian wood, we, of course, share these advantages of stumpage and labor, but we are at a disadvantage again when it comes to transportation.

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The cost of pulp wood delivered at Canadian mills does not exceed $6, which was the average quotation in 1907 for rough wood ready for shipment to the United States. The average cost of transportation of Canadian wood to the mills of this company in 1907 was about $3.25 per cord. As it takes approximately 1½ cords of wood to make a ton of paper, this is an advantage of nearly $5 which the Canadian mill has in the item of pulp wood per ton of paper. In addition, such wood as we buy from Quebec has to pay an extra stumpage to the government of 25 cents per cord, equal to 37½ cents per ton of paper. This comparison is borne out by the prevailing price of domestic pulp wood, which in 1907 was about $9 per cord in Maine and New York, as against $6 paid by Canadian mills.

In labor and wood, which are over 50 per cent of the cost of a ton of paper, the average Canadian mill has an advantage over us of $7.50, so that they are able to pay the duty of $6 and still make a profit.

The following table shows the wages in several European countries compared with those paid by this company:

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Rates of wages per day of twelve hours, International Paper Company, compared with foreign rates.

Department.	Occupation.	International Paper Co.	Austria.	Per cent increase of International Paper Co.	Germany.	Per cent increase of International Paper Co.	Sweden.	Per cent increase of International Paper Co.	Norway.	Per cent increase of International Paper Co.	England.	Per cent increase of International Paper Co.	Grand Mere.	Per cent increase of International Paper Co
Foremen	Ground wood	$9 60	$1.20	700	$1.50	540	$1.65	482	$1 60	500			$2.64	264
	Sulphite	6 92	1.40	394	1 60	332	1 70	307	1 70	307				
	Paper	9 60	1 50	540	1.75	449	1 85	419	2 00	380				
	Repairs	9 60	1.10	773	1.25	668	1 40	586	1 50	540				
	Steam	7.69	1 00	669	1.25	515	1 50	413	1 50	413				
Wood room	Head preparer	4 00	.90	344	1.00	300	1 00	300	1 20	233				
	Sawyer	3 00	.75	300	.87	245	.90	233	.95	216			1.68	79
	Barker	2 68	.75	257	.87	208	.90	198	.95	182			1.68	60
	Splitter	2 68	.75	257	.87	208	.90	198	.95	182				
	Chipper	2 68	.75	257	.87	208							1.80	49
Grinders	Head grinder man	3 00	1.00	200	1.25	140	1.20	150	1 30	131			2 64	14
	Grinder man	2 85	.75	280	.87	228	1.00	185	1 00	185			1.92	48
Ground-wood screens	Head screen man	3 00	1.00	200	1.25	140	1.20	150	1 20	150				
	Screen man	2 68	.75	257	.87	208	.90	198	.90	198				
Ground-wood presses	Head pressman	3 00	1 00	200	1 00	200	1 20	150	1 20	150			3 00	
	Pressman	2 68	.70	283	.75	257	.90	198	.90	198			1.72	56
Acid plant	Sulphur burner	3.72	1.10	238	1.25	198	1.25	198	1.30	186				
	Acid maker	3.72	.90	313	1.00	272	1.00	272	1.00	272			2.52	48
	Lime slacker	3.72	.90	313	1.00	272	1.00	272	.90	313			2.04	82
Digesters	Head cook	4.50	1.25	260	1.50	200	1.40	221	1.50	200			3.28	37
	Cook	3.66	.90	307	1.00	266	1.00	266	1.00	266				
	Cook helper	3.00	.70	329	.75	300	.70	329	.80	275			2.04	47
Beaters	Head beater man	4.88	1.10	344	1.25	290	1.10	344	1.20	307	$1.75	179	3.36	45
	Beater man	3.26	.80	308	.90	262	.80	308	.90	262	1.20	172	1.72	90
Paper machines	Machine tender	6.00	1.50	300	1.80	233	1.50	300	1.60	275	2.75	118	6.00	
	Second hand	3.96	1.00	296	1.20	230	1.10	260	1.20	230	1.60	147	3.75	6
	Third hand	3.00	1.00	200	1.20	150	1.10	173	1.00	200	1.25	140	2.70	11
	Fourth hand	2.68	.80	235	.87	208	.80	235	.80	235	1.05	155	2.26	19
	Fifth hand	2.68	.50	436	.60	347	.60	347	.50	436	.90	198		
Finishing	Head finisher	4.00	1.10	264	1.20	233	1.30	208	1.20	233	1.50	167	3.60	11
	Roll finisher	2.59	.80	224	.90	188	.80	224	.90	188	1.20	116	2.40	
	Sheet finisher	2.67	.80	234	.90	197	.80	234	.90	197	1.20	123	2.40	11
	Counter	2.20	.70	214	.70	214	.80	175	.80	175	1.05	110		
	Cutter man	3.00	.50	500	.70	329	.80	275	.80	275	.90	233		
	Cutter girl	1.91	.20	855	.25	664	.30	537	.30	537	.37	416		
Indoor miscellaneous	Head loader	3.67	.90	308	1.00	267	1.10	234	1.00	267	1.25	194		
	Paper loader	2.40	.60	300	.75	220	.80	200	.80	200	.87	176		

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Rates of wages per day of twelve hours, International Paper Company, compared with foreign rates—Continued.

Department.	Occupation.	International Paper Co.	Austria.	Per cent increase of International Paper Co.	Germany.	Per cent increase of International Paper Co.	Sweden.	Per cent increase of International Paper Co.	Norway.	Per cent increase of International Paper Co.	England.	Per cent increase of International Paper Co.	Grand Mere.	Per cent increase of International Paper Co.
Steam plant	Head engineer	$7.69	$1.10	599	$1.25	515	$1.40	449	$1.40	449	$1.75	339		
	Engineer	4.50	.90	400	1.00	350	1.00	350	1.00	350	1.25	260		
	Head fireman	3.60	.90	300	1.00	260	1.10	227	1.10	227	1.50	140		
	Coal fireman	3.00	.60	400	.75	300	.75	300	.80	275	1.00	200		
	Coal handler	2.68	.50	436	.75	257	.65	312	.70	283	.87	208		
	Ash handler	2.68	.50	436	.70	283	.65	312	.70	283	.87	208		
Repairs	Head millwright	4.66	1.10	324	1.25	273	1.20	288	1.20	288	2.00	133		
	Millwright	3.60	.90	300	1.00	260	1.00	260	1.00	260	1.10	227		
	Millwright helper	2.40			.75	220	.75	220	.80	200	.90	167		
	Carpenter	4.00	.90	344	1.00	300	.90	344	.90	344	1.25	220		
	Mason	6.00	.90	567	1.00	500	.90	567	.90	567	1.25	380		
	Painter	3.60	.90	233	.87	245	.90	233	.80	275	1.10	173		
	Electrician	4.08	1.00	308	1.25	226	1.10	271	1.00	308	1.25	226		
	Laborer	2.20	.60	267	.75	193	.75	193	.70	214	.90	144	$1.50	47
	Teamster	2.20	.60	267	.87	153	.85	159	.80	175	1.00	120	1.80	22
	Single team	4.60	.60	567	.87	360	.85	371	.80	400	1.00	300		
	Double team	5.32	.60	787	.87	512	.85	526	.80	565	1.00	432		
Office force	First clerk	4.44	1.10	304	1.50	196	1.40	177	1.50	196	2.00	122		
	Second clerk	3.34	.90	271	.87	284	.90	271	.80	318	1.50	123		
	Third clerk	3.11	.60	418	.75	315	.60	418	.60	418	1.00	211		
	Stenographer	3.34	.75	345	.87	284	.90	271	.85	293	1.25	167		
Average		3.91	.85	360	1.01	287	1.02	283	1.02	283	1.24	189	2.54	40
Compared with England		3.58												
Compared with Grand Mere		3.56												

Approved: BUREAU OF STATISTICS.
BUREAU OF STATISTICS, *May 15, 1908.*

JESSE L. PLASS,
Chief Clerk, Bureau of Statistics.

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Based on these rates, the cost of labor per ton of paper would be in each country as follows:

International Paper Company	$8.00
England	3.29
Germany	2.48
Sweden	2.22
Norway	2.22
Austria	2.09

Thus some European countries have an advantage on labor solely almost equal to the whole duty of $6.

While at present no news paper comes into the United States from European countries, we believe that if the duty were removed importations would follow from Scandinavia, Finland, and Germany. In Germany prices are sustained in the home market by a combination sanctioned by the Government and the surplus is sold for export to the highest bidder, regardless of cost, special rates of freight being given by government railroads; and the German manufacturers are thus able to hold important markets in England and in South America and to compete with Canadian and United States paper in Australia and at other points.

We have no exact figures for the cost of production in Finland, but it is a matter of common knowledge that wages there are but a fractional part of what we pay and that wood is extremely cheap. The industry is growing rapidly there. Finland pays our duty upon sulphite pulp and reaches the interior of the United States, underselling western pulp mills at their very doors.

In Scandinavia labor and wood are both very much cheaper than in the United States, and their surplus pulp and paper could be profitably marketed in this country if there were no duty.

Importations of print paper from Canada amounted in 1907 to 13,248 tons, and have continued at an equal rate through 1908, and the business of this company has suffered considerable inroads from this quarter. We were obliged to curtail production, beginning the latter part of 1907, because we could not place our normal product at a price sufficiently remunerative to enable us to pay dividends and the scale of wages in vogue. Starting with the executive department, a system of rigid economy and retrenchment was inaugurated, followed by the reductions in dividends above referred to, which were equivalent to a reduction of 15 per cent on our normal pay roll.

It became apparent in July of this year that a temporary reduction would have to be made in wages. The salaries of superintendents and other mill officials were first readjusted. The reduction in wages of some of the foremen belonging to the union which controlled the machine tenders precipitated a strike. The members of the pulp makers' union, however, and the firemen's union were desirous of continuing work and of helping the company meet a critical situation, and consented to a reduction of about 5 per cent in wages. The strike lasted three months and has finally been broken, the men of the paper makers' organization returning individually and accepting a reduction of about 5 per cent.

The average price at which the product of the company was marketed in 1900 was $43.64 per ton, delivered to the consumer, and in 1907 it was $42.83, a decrease of about 2 per cent, notwithstanding the increase in rate of wages of 66 per cent and in cost of wood of

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100 per cent. This decrease is in marked contrast with the advance in price of other grades of paper, and particularly with the general increase in the price of all kinds of commodities during the same period.

Our paper is manufactured and sold absolutely independently of other companies manufacturing news paper, which number 52 separate concerns. We make our prices absolutely independently, considering only the cost of production and a fair profit necessary to pay reasonable dividends and maintain the efficiency of our property.

The International Paper Company has made, up to June 1, 1908, 4,621,283 tons of paper, and, as stated, has declared dividends aggregating $13,950,000. This is an average profit to stockholders of only $3.02 per ton, so that the duty of $6 per ton has not, as has been alleged, been a "shelter for extortion."

We believe this mere recital of facts relating to the International Paper Company is conclusive evidence that it is in no sense monopolistic, and it therefore should not be deprived of the protection intended to be accorded to all legitimate industries under the tariff policy of the Government.

Neither conditions precedent to nor the usual results attendant upon a monopoly exist in this case. The company does not dominate the production or price of the line of goods which it manufactures. It is not overcapitalized, and its profits are not only not exorbitant, but are not a fair return upon the investment. It violates no statute aimed at restraint of trade, nor any other. The wage-earner has profited under its management. Its competitors have not complained against it. Its customers acknowledge that its service and the quality of its output have improved since the company was formed, and that they are equal, if not superior, to those of any of its competitors. Its stockholders have never charged it with dishonest or inefficient management, and, in general, none of the grievances exist which are supposed to be engendered by so-called "trusts," with the sole exception that some few publishers have charged extortion and various malevolent acts, which they have repeatedly failed to prove.

If any discrimination is to be made between large industrial corporations which conduct their business in a legitimate manner and those which do not, the International Paper Company claims that it is entitled to commendation rather than condemnation, and in the formulation of the Government's tariff policy that it should receive on its own account fair and reasonable protection, and that no policy should be adopted which would injure it or the industry of which it is but a small part.

Referring to paragraph 393 of Schedule M, we are opposed to any reduction whatever in the duties therein specified for pulp. The duty on mechanically ground wood pulp of one-twelfth cent per pound is equivalent to not more than 10 per cent on the average price.

Next to the raw material, wood, the most important factor in the manufacture of ground wood pulp is water power for reducing the wood to pulp. This company not only produces all the ground wood that it requires, but has ample undeveloped water power in reserve for its future requirements when, and if, the condition of the market warrants a further increase in its output in this country. The making of ground wood pulp constitutes one of the most important steps in the process of making paper, and involves a large out-

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lay of capital and the employment of a large amount of labor. We do not believe that our paper should be brought in competition with paper made from foreign pulp having free entry into this country, since the wages in foreign mills are so much less than in our own. In 1907, 138,000 tons, valued at nearly $2,000,000, came in from Canada.

The duty on chemical wood pulp of one-sixth cent per pound amounts to not more than 9 per cent upon the average price of unbleached sulphite pulp, which is the only kind of chemical pulp that we use to any considerable extent. We make all the sulphite pulp that we require and have ample facilities for increasing our output as fast as conditions warrant. If the duty were taken off from sulphite, or substantially reduced, this market would be flooded not only with sulphite pulp from Canada, but from European countries, particularly Norway, Sweden, and Germany, where, as already shown, labor costs not more than 26 per cent of what we pay; as well as Finland, where wages are still lower.

We do not believe the capital and labor involved in this branch of our business should be subjected to unrestricted competition with foreign pulp, which may be, and is, sold in this market in spite of the existing duty. In 1907, 50,000 tons came from Canada and more than 40,000 tons from Europe.

We will subsequently discuss the so-called "countervailing duty" clause contained in this paragraph and paragraph No. 396.

Referring to paragraph No. 396, we are most emphatically opposed to any reduction in the duty on print paper in so far as it applies to news paper. The duty of three-tenths cent per pound on paper valued at not above 2 cents per pound is practically about 15 per cent upon the price at Canadian mills. This is a much lower duty than almost any other commodity enjoys, and is substantially the same as under the so-called "Wilson tariff." It is not adequate to prevent extensive importations of news paper from Canada, as already shown, and any reduction would mean an increase in importations and a loss of business for us. It would check the growth of our production, and the removal of the duty would close up a number of our mills. We believe that under any conditions the free admission of paper would compel us to abandon many of our plants and either drive us out of business or compel us to build mills in Canada.

We believe that great as is the stake which our stockholders have in this issue it would be as nothing compared with the disastrous effect upon our employees and the communities where our mills are located. We believe that an industrial concern of the magnitude of the International Paper Company can not be crippled or crushed out without serious detriment to the welfare of the country.

The normal capacity of the International Paper Company exceeds the present consumption of its customers, and yet 7,000 tons of print paper were imported into this country during the first half of 1908, depriving the employees of our own and other mills of employment.

If the duty on paper were removed or substantially lowered, and if this resulted in reducing the price, as claimed by some publishers, this company, having no sufficient margin of profit to enable it to resist foreign competition without loss, would be forced, in an effort at self-preservation, to accomplish retrenchment both by cutting down

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wages and abandoning conservative and comparatively expensive methods of lumbering on its timber-land holdings in this country; instead of leaving small wood for future growth, it would have to strip the lands of every available stick of pulp wood and would very likely be forced to realize further by marketing all the hard wood thereon. It would aim to keep going long enough to get all it could out of its timber lands, mills, and water powers before abandoning them.

We firmly believe that removing the duty from paper would not only not be in the interest of forest preservation in this country, but would lead to the immediate destruction of the timber on the 5,000,000 acres held by paper manufacturers, and as much more as they could get hold of.

We know of no way by which this result can be avoided if we are brought into competition with free paper, which is what Canada seeks. We believe that the movement in Canada in favor of putting an export duty on pulp wood, or prohibiting its exportation, is not likely to be successful, because it is not fonnded on any sound or just principles; and we further believe that if it should be successful it would result in such great injury to Canada that such a policy would be short lived.

One of Canada's greatest assets is her forests, but they are only profitable to her in so far as they are productive. We sympathize with any bona fide desire on her part to perpetuate her forests and are willing to submit to any reasonable restrictions in our operations in the Canadian woods which have that end in view, but Canada has a very great area of timber lands, and they can produce a large annual yield without impairing them—all that her mills and ours will want for generations to come.

Canada is exporting $33,500,000 worth of forest products a year, and is doubtless eager to increase her markets for lumber, etc., and her exports thereof. Her exports of pulp wood in 1907 amounted to about $5,000,000. It looks inconsistent, to say the least, for her to seek to increase her exports of lumber generally and to check the exports of one particular variety, especially as pulp wood is very generally distributed throughout the Dominion. The consumption by the United States is comparatively insignificant compared with Canada's extensive supply.

We are therefore forced to the conclusion that the opposition to exporting pulp wood is not based on any genuine apprehension on behalf of forest preservation. On the contrary, we have conclusive evidence in published statements of the exponents of this policy that the real motive is to hamper the industry in the United States in order to build it up in Canada. The movement is supported by the Canadian paper and pulp manufacturers, who desire to increase their output and to secure a market for it in the United States. In other words, they wish to withhold from us the raw material which we desire and force us to take the manufactured product.

This attitude is inconsistent with their general tariff policy, which admits our raw material free and raises a higher barrier against manufactured products. For example, Canada imported free of duty in 1907 from the United States about $8,000,000 worth of raw cotton, but our own manufactured cotton goods going into Canada have to pay duties ranging from 20 to 35 per cent. In addition

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Canada gives to England a preference of 33⅓ per cent on cotton goods, also made from the raw cotton which we furnish. Canada is also taking from us annually about $28,000,000 worth of coal and coke (all free of duty except 50 cents per ton on bituminous coal) to run her mills to make goods which the United States could furnish her if it were not for her tariff.

Although the Province of Ontario has actually prohibited the export of pulp wood cut from crown lands, and the Province of Quebec discriminates against us by charging 25 cents more per cord for stumpage on pulp wood if it goes to the United States than if manufactured in the Dominion, it seems improbable that either the Canadian people or the government will ever sanction so unfriendly and unusual an act as placing a general prohibition or embargo upon the exporting of pulp wood.

It would seem, however, to be only the part of prudence for this country to prepare itself should such hostile action be taken. We advocate, therefore, that the countervailing duties provided for in sections 393 and 396 should be remodeled so as to make their application more sweeping in case Canada assumes an aggressive attitude. Should your committee desire our views more in detail as to how this should be done, we shall be glad to submit them.

So far as this company therefore is concerned it is content to have the tariff remain as it is, with the exception of the countervailing clause and the possible addition to the administrative act of the tariff of a provision which will prevent foreign manufactures from selling their output in this country at lower prices than prevail in their home markets.

Mr. UNDERWOOD. I see that most of your factories are located in New York, Maine, and Vermont. What percentage of the output of paper do your factories represent north of the Potomac River and east of the Allegheny Mountains?

Mr. LYMAN. I should say about 60 per cent, as a rough calculation.

Mr. UNDERWOOD. Being a large producer of the paper that is manufactured within that territory, I presume that you ship your paper from the nearest mill to the market that demands that supply, do you not; in other words, if you were shipping to Boston you would send from the mill nearest Boston?

Mr. LYMAN. If the sizes suit our machines, and if the quality suits the customers.

Mr. UNDERWOOD. As a rule you have your mills built for that purpose, do you not?

Mr. LYMAN. We do not have them built for any particular locality; that is, we do not build them for a market that is nearest at hand.

Mr. UNDERWOOD. You manufacture for the market nearest at hand, don't you.

Mr. LYMAN. We manufacture for the country. No, we do not. In the case of New York City, where there is such a great permanent demand, if we put up a mill that was favorably situated to suit that market we would undoubtedly consider the size of the rolls used in the New York market, but that would be no guarantee that they would be permanent.

Mr. UNDERWOOD. Does the paper that you ship to the Boston market come from mills more contiguous to the Boston market than from your other mills?

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Mr. LYMAN. Yes, naturally, in so far as we can try to have the average freight rate less.

Mr. UNDERWOOD. Under the circumstances, what is your average freight rate in covering the product to the Boston market from the mills that are contiguous?

Mr. LYMAN. I can only say from general knowledge. We have departments that have their specialties, and no one person in our company knows all the details of all our departments; but I should say that probably 10 cents a hundred.

Mr. UNDERWOOD. Long tons or short tons?

Mr. LYMAN. Ten cents a hundred pounds.

Mr. UNDERWOOD. That would be $2 a ton.

Mr. LYMAN. Two dollars a short ton.

Mr. UNDERWOOD. Well, as to the New York market, what would the freight rate come to in the delivery of your product?

Mr. LYMAN. That will average probably 15 cents, or $3 a ton.

Mr. UNDERWOOD. What is the distance of the contiguous mills of your company to the Boston market?

Mr. LYMAN. The nearest mill that makes news paper is the distance from the Connecticut River at Bellows Falls to Boston, which I do not know.

Mr. UNDERWOOD. Estimate what it is.

Mr. LYMAN. I understand it is 116 miles.

Mr. UNDERWOOD. What is the distance from your contiguous mills to New York?

Mr. LYMAN. From 50 miles above Albany, and as Albany is about 145 miles, that would make it about 200 miles.

Mr. UNDERWOOD. What is the nearest distance to Boston from the nearest Canadian mill?

Mr. LYMAN. The nearest Canadian mill that I know of, and that I have in mind, is at Ottawa, which is distant about 300 miles from Boston.

Mr. UNDERWOOD. What is the distance in New York from the nearest Canadian mill?

Mr. LYMAN. Well, I think it would be the same as from Ottawa, although I think Boston must be a little farther from Ottawa than New York, but probably about the same distance.

Mr. HASTINGS. It would be 400 miles from New York.

Mr. UNDERWOOD. Now, what would it cost for the transportation of a ton of paper from the Canadian mill that is situated 300 miles from Boston to Boston? You stated that the cost from your mill to Boston would be about $2 for 116 miles. What would be the freight rate from the Canadian mill to Boston?

Mr. LYMAN. Well, I should say that would be probably 15 cents a hundred.

Mr. UNDERWOOD. That would be about $4.50.

Mr. LYMAN. Excuse me, but it strikes me that it is futile to have these guesses and then try to form conclusions based upon those, when if you wish, I will put in a table of exact figures; in fact, that has all been submitted to this select committee, and therefore, I did not attempt to burden ourselves with memoranda of these details.

Mr. UNDERWOOD. What I wanted was this: As I read your statement through, you did not deal in the freight rate. I desired to ascertain those facts, but if you prefer to put that in in a supplemental paper, very well.

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Mr. LYMAN. I will say that the reason why I did not take up the freight rates was that I think you can eliminate them on both sides of the equation; that they do not cut much of a figure one way or the other, except that we have to consider freight on our wood; but as for the freight on the paper, there are some portions of the United States which some Canadian mills can reach for less than some of the American mills, and some points which some of the American mills can reach, naturally, cheaper than the Canadian mills.

Mr. UNDERWOOD. I took it that this shipment of paper was a good deal like a shipment of coal or lumber; that the freight rate was a very material factor in reaching the market, and that when your mills went southward, going away from the Canadian market, you have the advantage of the difference in distance. Are not the western mills located very much nearer the market in which they sell their products than the Canadian mills?

Mr. LYMAN. My impression is that the difference diminishes the farther away you go; that is, as you go farther away from the mills the rates draw nearer together. Is that not so, Mr. Chable?

Mr. CHABLE. The rates from western points to Canadian mills are exactly the same as to places like Otis, Me., or Berlin, N. H. They take what is known as the Berlin rate.

Mr. LYMAN. The Canadian railroads fix that up so as to put the Canadian mill on an equality with the United States mill.

Mr. UNDERWOOD. There are a good many mills located in the West, which are doing a paper business, are there not?

Mr. LYMAN. Yes.

Mr. UNDERWOOD. And they are a good many hundred miles nearer the markets in St. Louis and Kansas City and New Orleans than the Canadian mills, are they not?

Mr. LYMAN. Not a good many hundred miles, I do not think.

Mr. UNDERWOOD. How far south is the farthest paper mill located in the United States; South or West?

Mr. LYMAN. You are speaking of news paper?

Mr. UNDERWOOD. The mills in your business, yes.

Mr. LYMAN. The farthest south is at Turners Falls, in the East; and in the West I should say that was at Appleton, Wis., so far as I know. At Kansas City there is a paper machine started by a newspaper publisher, and I would hardly put that in the category of a mill. It has never been a success, and it does not make its own pulp.

Mr. UNDERWOOD. According to that, Wisconsin is then your farthest southern mill, and the Canadian mills that manufacture paper are largely in eastern Canada, and not in western Canada?

Mr. LYMAN. Mostly in Quebec, yes.

Mr. UNDERWOOD. So that for the western and southwestern market, the mills located in Wisconsin are very much nearer that market than the Canadian mills, are they not?

Mr. LYMAN. Well, that is a question. That hinges on one's knowledge of the relative distances geographically.

Mr. UNDERWOOD. I judged they were, and I wondered if there was any reason in freight rates or otherwise that you knew of, and if so, I would like to have you state it.

Mr. LYMAN. I would consider that there was—as I understand it, the freight rates from those Canadian mills are made equal to the

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rates from the Wisconsin mills and the Minnesota mills to such points as that.

Mr. UNDERWOOD. Do you mean to say that the railroads give the same rates now under this new interstate-commerce law from the Canadian mills located at Quebec to Kansas City that a mill in Wisconsin would give?

Mr. LYMAN. The Canadian roads can make any rate they want, which, of course, is not controlled by the Interstate Commerce Commission.

Mr. UNDERWOOD. I understand that you state that as a fact?

Mr. LYMAN. As a general principle, the Canadian roads make very low rates to help out the Canadian industries.

Mr. UNDERWOOD. Can you state it as a fact that the rate is the same; that there is no advantage to the Wisconsin mill over the Canadian mill in freight rate going to St. Louis or Kansas City?

Mr. LYMAN. I am not stating that as a fact, unless it can be corroborated by some gentleman here. I think it is a little higher.

Mr. UNDERWOOD. Do you know how much?

Mr. LYMAN. I do not; and moreover we have no mills in Wisconsin.

Mr. UNDERWOOD. I am talking about the general paper business. I knew from your statement that you have no mills there. The freight rate differential in favor of the American mill must be a dollar or two a ton on paper, is it not?

Mr. LYMAN. In some instances it is a dollar or two in favor of the Canadian mill, as I have stated. Now, it will all come to this, that in my opinion the freight rates are practically the same, and the differences are prescribed by other more important factors of cost.

Mr. UNDERWOOD. I notice that your capital stock amounts to something like—I believe you have 22 millions of common stock, 17 millions of preferred, and 17 millions of bonds.

Mr. LYMAN. You have those figures reversed as to the stock. We have 22 millions of preferred and 17 millions of common.

Mr. UNDERWOOD. Does that represent an actual investment, or was that stock issued at a valuation in putting it into the new company?

Mr. LYMAN. The properties that were taken in were taken at an appraised value, and what they actually cost nobody knows but the people who were connected with them before the International Paper Company was formed. They were taken in at what was considered to be a fair value, and most of those who were to take part in the formation of the International Company were anxious to have every other person's property put in at the minimum price so that their own would not be diluted.

Mr. UNDERWOOD. You do not know whether that represented the actual cost, the original cost of the plants, or not?

Mr. LYMAN. Nobody knows that. Their appraised value was had at a time of very great depression and very small earnings; and if the formation of the company had been postponed a few years, until there was general prosperity, I presume that they would have been appraised at a very much larger figure; that is, the owners would not have been willing to part with them at such figures as they were taken in at in 1897.

Mr. UNDERWOOD. In 1897 the prices had not gone up very extensively?

Mr. LYMAN. Gone up from when?

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Mr. UNDERWOOD. Had not advanced as they had up to 1907.

Mr. LYMAN. In 1897 they had not advanced from when?

Mr. UNDERWOOD. They were not nearly as high as they were in 1907, ten years later—the general prices?

Mr. LYMAN. Well, our first business year was 1898, and I have given our price for 1900. My impression is that the price for 1898 was about the same as 1900, and that the prices in 1897 were——

Mr. UNDERWOOD. I do not think you understand the question that I asked you. You say that you put this property in at a low valuation, that you considered it a low valuation, but that had it been put in a few years later it would have gone in at a much higher price. You put it in in 1897 or 1898——

Mr. LYMAN. It was appraised in 1897, and the company started in 1898.

Mr. UNDERWOOD. Since that time, according to your statement here, you have not been able to pay any dividends on the common stock?

Mr. LYMAN. Only three small dividends.

Mr. UNDERWOOD. You stated that if this property had been put in a few years later it would have been put in at a very much higher figure. There is nothing here in the earning capacity of the company to warrant that statement—that you could have put it in at a higher figure?

Mr. LYMAN. There was a time during the Spanish war when paper became very scarce and independent mills asked a good deal more for their paper than the International Paper Company did, and it was in our power to ask very much higher prices than we did ask.

Mr. UNDERWOOD. The Spanish war occurred at the time you organized, in 1898?

Mr. LYMAN. That was our first year, but the effect was not felt so much until the latter part of 1898 or 1899. I think you will find that generally the stimulus of the Spanish war—I do not remember when the Boer war occurred—but I know that the effect of those occurrences was not felt for a year or so commercially.

Mr. UNDERWOOD. If your statement as to the earning capacity of the company is correct, there is nothing in your earning capacity to demonstrate that the property was worth what you put it in the company for, is there? It has only paid a dividend on two occasions, on the bonds and preferred stock.

Mr. LYMAN. The value of a property is not wholly determined by what it will earn; if it were, stock watering, of course, would be justified.

Mr. UNDERWOOD. Then, this stock really has some speculative value; that is, it is speculative value that they have put in here and not an actual value?

Mr. LYMAN. That is a thing that can not be positively said by anybody, because the matter of valuation is uncertain, and one person may say that a thing is worth so much, and another so much; and if the man who sold that property had said that his property was worth so much in common stock and so much in preferred stock, there is nobody who could prove but that it was right.

Mr. UNDERWOOD. But really, as a matter of fact, the great percentage of the value of this company is upon a speculative estimate

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as to the value of your water power and your wood holdings—land holdings—and not as to the buildings and plants. Is not that so?

Mr. LYMAN. The plants are a large element. That is all shown in a statement to the select committee showing just how we make that up.

Mr. UNDERWOOD. Now, it was stated to-day by the gentleman who preceded you on the other side that your mills were old and not up to date, and that no improvements were put into them. Is that so?

Mr. LYMAN. It is wholly misleading. It has been a statement that he has harped on for ten or twelve years, ever since the hearings in 1896, when it was stated that they were dilapidated and old then. It is perfectly absurd.

Mr. UNDERWOOD. If that statement is untrue, then to what extent have you improved your mills and developed them since that time; since your organization?

Mr. LYMAN. The extent to which we could with the outlay of the proceeds of $6,000,000 bonds and what surplus earnings we could make to keep them up.

Mr. UNDERWOOD. How much did it amount to?

Mr. LYMAN. Roughly speaking, $12,000,000 or $13,000,000, perhaps—$10,000,000 I would say, because some of these earnings we appropriated in other ways; they were absorbed in working capital—that is, the working capital increased.

Mr. UNDERWOOD. Do I understand you to say that you have improved these plants to the extent of 10 millions of dollars in addition to 6 millions of bonds?

Mr. LYMAN. No; including.

Mr. UNDERWOOD. Four millions of dollars in addition to 6 millions bonds?

Mr. LYMAN. Yes, sir.

Mr. UNDERWOOD. How much have you increaesd your working capital since your organization?

Mr. LYMAN. That I am unable to say offhand without working it out from our statement. It fluctuates. We have been having several bad years, and our working capital has been absorbed.

Mr. UNDERWOOD. Do you know what your working capital was when you organized your company?

Mr. LYMAN. Well, I did know, but I don't recollect it. I should say four or five millions.

Mr. UNDERWOOD. What is your working capital to-day?

Mr. LYMAN. I say, I do not know.

Mr. UNDERWOOD. Is it in excess of what it was when you started?

Mr. LYMAN. I can not say just what the last balance sheet would show as free capital. I think that when we made up a statement for the select committee that it was somewhat less than five millions.

Mr. UNDERWOOD. Then you have not increased your working capital since you started?

Mr. LYMAN. That would follow if those guesses are correct.

Mr. UNDERWOOD. But you have added four millions out of your profits to your improvements?

Mr. LYMAN. To maintenance.

Mr. UNDERWOOD. I thought you said a while ago that it was betterments. Maintenance would leave the mill in the same condition, while betterments would put it in a better condition.

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Mr. LYMAN. I do not think I used the word "betterments;" I said improvements.

Mr. UNDERWOOD. You said the property was in a better condition than when you started out, and for that reason the gentleman's statement was incorrect. Do you take that back?

Mr. LYMAN. I think I stated that the statement that they were a lot of dilapidated mills, or ever had been so, was grossly misleading.

Mr. UNDERWOOD. Well, in view of that, you said that you had put betterments on them probably to the extent of these earnings, $6,000,000 out of bonds and $4,000,000 out of profit. Now, you have been running for about ten years?

Mr. LYMAN. Yes, sir.

Mr. UNDERWOOD. That would represent an earning capacity in addition to what you paid on your stock of about $400,000 a year profit that you have made out of the business?

Mr. LYMAN. I have worked that all out right here—$700,000.

Mr. GRIGGS. You say that the earnings of the company in excess of dividends in ten years amounted to $7,381,000, leaving the surplus earnings, together with the proceeds of sale of $6,000,000 of bonds, as having been used mostly in the improvement of plants, which is $13,381,000?

Mr. LYMAN. Yes.

Mr. GRIGGS. You only used $10,000,000 of that?

Mr. LYMAN. I say mostly. I did not substantiate that by looking it up. I know the affairs of the company generally.

Mr. GRIGGS. I am not trying to mix you up at all, but to set you right.

Mr. LYMAN. Yes; I do not want to be held down to too great exactness in making statements in answering questions of this nature.

Mr. UNDERWOOD. Counting betterments and improvements, you have a pretty profitable concern?

Mr. LYMAN. Not at all, sir. I do not regard that as at all an adequate profit for the property that is represented.

Mr. UNDERWOOD. What effect do you think it would have on the price of paper if we were to repeal all duties on manufactured wood pulp and paper?

Mr. LYMAN. On the price of paper?

Mr. UNDERWOOD. I will put it in this way: I will not say to remove the duties, but if we adopted a minimum and maximum tariff bill, and the executive department of the Government should enter into a reciprocal agreement under a minimum and maximum tariff rate with Canada that would remove the duties from Canadian wood pulp and Canadian paper—leaving out the balance of the world—I will ask you what effect that would have on the price of paper?

Mr. LYMAN. That would be exactly tantamount to removing the——

Mr. UNDERWOOD. That would mean free trade from Canada to this country.

Mr. LYMAN. The effect would be the same as if you took it off here, unless it gives us power to retaliate by going in and getting the Canadian market.

Mr. UNDERWOOD. What I mean is this, to make myself plain: If we had free trade on paper and wood pulp between this country and Canada, leaving out the balance of the world, leaving the duty on for

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the balance of the world, what effect would that have on the price of paper in the United States?

Mr. LYMAN. I think it would greatly lower the price, and in the course of ten years you would find that the paper was being made up in Canada, and the mills here would be abandoned in a very large number; but the change as I look at it, would take place gradually.

Mr. UNDERWOOD. To what extent would it immediately lower the price?

Mr. LYMAN. I do not think it would immediately lower it at all. There is great scarcity of paper at this minute. If we should have a rainy fall and things freeze up, the situation would be relieved.

Mr. UNDERWOOD. At a time when you were able to produce sufficient paper both in this country and Canada, mills running under normal capacity, what effect would it have on the market?

Mr. LYMAN. If we were running to normal capacity and the consumption and production were just about balanced, it would reduce prices just as soon as Canada could increase her output, which we would do.

Mr. UNDERWOOD. Well, if you can not answer my question, all right; but I would have liked to have had from you a statement of facts, as you are in the business, but if you can not make it, say so.

Mr. LYMAN. People are very apt to ask questions from practical men and lead them to make a reply about something which they do not know anything about. Now, I know just enough about this to know that I do not know enough to get up and tell you just what is going to happen, because so many things could occur to interfere with that.

Mr. UNDERWOOD. The amount of the tariff on a ton of Canadian paper coming into this country is how much?

Mr. LYMAN. Six dollars.

Mr. UNDERWOOD. Would it reduce the price to the extent of $6 if we took the tariff off?

Mr. LYMAN. I believe it would not at once. It might have that tendency, but before the tendency could work out, some other tendency and influence might get to work that would offset it.

Mr. UNDERWOOD. Then you do not think the reduction in price in this country would amount to as much as $6?

Mr. LYMAN. Not immediately; no.

Mr. UNDERWOOD. Do you think it would ultimately?

Mr. LYMAN. Other things being equal, if no other conditions come in to change it—suppose, for instance, that all the Canadian mills were unionized, and rates were raised. Would not that have a tendency to offset it? There are a great many things like that that can happen.

The CHAIRMAN. Who is the author of this brief that you have presented?

Mr. LYMAN. I wrote it.

The CHAIRMAN. You are the author of it?

Mr. LYMAN. Yes.

The CHAIRMAN. You state that in 1898 the International Paper Company took over the property of a number of corporations by purchase, as I read it. What did they do, buy out the stockholders?

Mr. LYMAN. The old companies—for instance, the Glens Falls Paper Manufacturing and Paper Mill Company, that had mills at Berlin, sold all of their property to the new company, the Interna-

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tional Paper Company—as a matter of fact, they sold it to trustees who received it.

The CHAIRMAN. I do not care how the transfer was brought about, but they sold it for what consideration, cash?

Mr. LYMAN. Stock and bonds of the International Paper Company.

The CHAIRMAN. Do you remember the amount of stock and bonds?

Mr. LYMAN. Of that particular mill, or any mill?

The CHAIRMAN. Yes.

Mr. LYMAN. No; I do not.

The CHAIRMAN. Do you remember that of any of them?

Mr. LYMAN. No; I do not.

The CHAIRMAN. You have figures to tell you of each mill?

Mr. LYMAN. Yes.

The CHAIRMAN. If it would not be too much trouble, I wish you would produce a statement showing the purchase price of each of these properties, and how paid, in cash, bonds, or otherwise.

Mr. LYMAN. We can do that, and would be glad to do it.

The CHAIRMAN. And the capacity of each mill—the number of tons they made each day—at the time of the purchase. Have you got that information here now?

Mr. LYMAN. No; I have not, but I will have my secretary make a memorandum of it and furnish it.

The CHAIRMAN. You may send it to the committee to be filed. Now, you make certain statements here about the wages paid in the mills, your mills, and the foreign mills; that is, you make a statement about one of the Canadian mills. What Canadian mill is that?

Mr. LYMAN. The first statement refers to the J. R. Booth mill at Ottawa.

The CHAIRMAN. And what is the capacity of that mill?

Mr. LYMAN. It has increased lately. What is the capacity of the Ottawa mill, Mr. Hastings.

Mr. HASTINGS. About 100 tons.

Mr. LYMAN. What was it in February?

Mr. HASTINGS. The same then.

The CHAIRMAN. And where did you get your information about the wages?

Mr. LYMAN. Mr. Whitcomb, the manager of our manufacturing department at that time, was at that mill, and talked personally with the laboring men in the mill; got it from the men themselves as to what they were being paid, and made a memorandum of it.

The CHAIRMAN. When did you get that?

Mr. LYMAN. That was gotten in the spring of this year.

The CHAIRMAN. Did you get information as to the wages paid in any other Canadian mill?

Mr. LYMAN. We did; through the president of one of the labor organizations. He got a partial list of several mills, and one of those is incorporated in that statement; that is the Grand Mere Laurentide mill.

The CHAIRMAN. You did not put that in your brief?

Mr. LYMAN. Yes; that is in one of the statements. It is rather incomplete.

The CHAIRMAN. The last column in that statement?

Mr. LYMAN. Yes, sir.

The CHAIRMAN. Does that represent the wages in several mills?

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Mr. LYMAN. That is fairly representative, I understand. We haven't got it absolutely and completely.

The CHAIRMAN. What about this mill of Sir William Van Horne's that we hear so much about?

Mr. LYMAN. That is the Laurentide Paper Company, at Grand Mere, on the St. Maurice River. It was started originally by United States capital, and is the one that General Alger had an interest in.

The CHAIRMAN. Where is it located?

Mr. LYMAN. At Grand Mere, on the St. Maurice River.

The CHAIRMAN. What part of Canada is that?

Mr. LYMAN. It is in Quebec, about the central part.

The CHAIRMAN. Sir William has made some statement about wages paid in the mill, hasn't he; or some statement has been published purporting to have come from him?

Mr. LYMAN. There has been a statement from that mill as to wages, but I do not know whether Sir William Van Horne has ever made any statement in regard to wages or not.

The CHAIRMAN. And that statement purported to show that the wages were greater in the Canadian mills than in the American mills?

Mr. LYMAN. I say I am not aware of any statement made by Sir William Van Horne.

The CHAIRMAN. You said that there was a statement published. That statement that you saw published purported to show greater wages paid in that mill than in the American mills, did it not?

Mr. LYMAN. I do not think it made that comparison.

The CHAIRMAN. I noticed something in Mr. Norris's brief about it, some general statement, and I would like to know the facts about it.

Mr. LYMAN. We have no very good data as to the wages paid in the Canadian mills. It is not complete.

The CHAIRMAN. Do you think you can get these figures for me?

Mr. LYMAN. We will make another effort. We have tried to get them, but have not succeeded in getting the information completely; but we will make it a point to do so if we can.

The CHAIRMAN. Have you stated in your brief all the differences that occur to you in favor of the Canadian mills lowering the cost of production below that of the American mill?

Mr. LYMAN. I do not think I understand that question.

The CHAIRMAN. You have stated in your brief the differences in cost of labor, cost of stumpage, etc. Have you stated all those differences that have occurred to you in favor of the Canadian mill?

Mr. LYMAN. I did not attempt to go into the small ones. I thought the larger factors were enough to be determinate.

The CHAIRMAN. Are there no other differences?

Mr. LYMAN. There are differences one way or another, some against us and some in favor of us, and quite different at different mills, the different mills in our company, and the different mills in Canada.

The CHAIRMAN. You do not go into the difference in freight?

Mr. LYMAN. Freight on paper?

The CHAIRMAN. The freight on pulp wood or freight on anything.

Mr. LYMAN. Enough to satisfy myself that it was almost negligible; that is, the difference in the freight upon the finished product from the Canadian mills and the American mills.

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The CHAIRMAN. You could not give us the average freight paid per ton on pulp wood, bringing it to your mill and bringing it to the Canadian mill, and the average amount per ton paid on the products of the two mills?

Mr. LYMAN. I attempted to give the averages—I did give the average rates of freight paid on our wood of $3.25, but you might say that there is no such thing as "average freight" to the Canadian mills, and you would have to have a complete statement in order to get a true average.

The CHAIRMAN. Do you mean to say that they haven't any average freight rate from the Canadian mills to New York or Boston?

Mr. LYMAN. Quebec is a pretty big province, and they have pulpwood mills that are away up at Lake St. John, north of Quebec, and away out West in the western part of Ontario; but I can get rates that are typical.

The CHAIRMAN. With their mills located in those places so far away from the market, you would not have much competition anyway; they would rather sell nearest home.

Mr. LYMAN. Oh, no.

The CHAIRMAN. Where do they sell?

Mr. LYMAN. They sell in Europe, in Australia, and some of it here.

The CHAIRMAN. Do they sell it in the United States?

Mr. LYMAN. Some of it here. I gave the amounts that they sell here.

Mr. CALDERHEAD. Do you sell paper in Kansas and Nebraska?

Mr. LYMAN. No; we do not get out as far as that.

Mr. CALDERHEAD. How far west do you go?

Mr. LYMAN. No farther than St. Louis, I think. We have had some orders out there, but we lost them in competition.

Mr. CALDERHEAD. What price do you sell No. 2 print paper for as far west as St. Louis?

Mr. LYMAN. We only have one grade, and the price in St. Louis to-day would be based probably on about 2¼ cents New York delivery, plus the freight to St. Louis. That is my general impression. I am not connected with the sales department.

Mr. CALDERHEAD. Do you know the Carpenter Paper Company, of Chicago?

Mr. LYMAN. Yes; of Omaha? They used to be in Omaha.

Mr. CALDERHEAD. Do you come in competition with that company anywhere?

Mr. LYMAN. I do not know whether they would get east as far as we get west or not. I do not think they come far enough east to reach us. They are jobbers.

Mr. CALDERHEAD. Would you sell paper in 500-ton lots as low as $2.08?

Mr. LYMAN. Where? Out there?

Mr. CALDERHEAD. In St. Louis.

Mr. LYMAN. No.

Mr. CALDERHEAD. Or Kansas City?

Mr. LYMAN. Not to-day.

Mr. CALDERHEAD. Or Chicago?

Mr. LYMAN. Not to-day. I do not think anybody could get it to-day for that. We could not afford to.

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Mr. CALDERHEAD. The Carpenter Paper Company made a contract for 500 tons with one paper in my State at $2.08 a hundred recently.

Mr. LYMAN. It probably came from a western mill, did it not, considerably nearer than we are to them? The rate becomes prohibitive when you get out that far.

Mr. CALDERHEAD. Is there any print paper selling at that price anywhere in the eastern part of the United States?

Mr. LYMAN. $2.08?

Mr. CALDERHEAD. Yes.

Mr. LYMAN. I do not think there are any quotations being made now as low as that. There was some paper sold at auction at $2.05 and $2.06, and thereabouts, f. o. b. mill. If anybody bought it at the mill and wanted to use it right there at hand, it would not cost them more than $2.08.

The CHAIRMAN. A year ago quite a number of newspaper people had contracts that ran from three to five years at a low rate, did they not, and they expired?

Mr. LYMAN. Yes.

The CHAIRMAN. So there was quite a difference in the price of paper?

Mr. LYMAN. Yes.

The CHAIRMAN. For instance, the New York Times and the Staats Zeitung had old contracts that expired. They expired, I believe, last spring, did they not?

Mr. LYMAN. I believe they have been making yearly contracts; I think so.

The CHAIRMAN. And after that the price was higher?

Mr. LYMAN. Yes. They had had pretty low contracts. They probably made their contracts at the very most favorable time.

The CHAIRMAN. A gentleman connected with one of those papers told me last summer that he had lower rates than even some of the paper publishers mentioned in Mr. North's reports; he got the paper lower still. However, I want to ask you this question: Can you tell us what proportion of the entire amount of timber cut in the United States is turned into paper?

Mr. LYMAN. As I have figured it out from government reports, it is less than 1.6 per cent.

The CHAIRMAN. Is that a conservative figure?

Mr. LYMAN. It is conservative if the government figures are conservative. It is based purely on official figures. It is simply a matter of arithmetic.

The CHAIRMAN. Are there any statistics that show that?

Mr. LYMAN. Yes, sir.

The CHAIRMAN. Published by the Department of Commerce and Labor?

Mr. LYMAN. There is one pamphlet published by the Forestry Service called "The Drain on the Forests," I think, in which they give what the total consumption of wood is in the United States. They figure it at about 100 billion feet; and the domestic pulp-wood consumption for the same year was about 1,500,000,000.

The CHAIRMAN. That is where you get the ratio of 1.6 per cent?

Mr. LYMAN. Yes.

The CHAIRMAN. That is all.

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Mr. CALDERHEAD. Another question. At the same time that this contract was made for 500 tons of paper at $2.08 contracts were made by another paper company for the supply of paper for the next year—this coming year—at $2.14; and in another newspaper office in my State, when I made that statement, they showed me correspondence in which they were tendering them paper at $2.85 for Chicago paper and $2.87 for paper from Buffalo, and contended that that was the lowest rate that they could make. How does it come that there is such a wide range in prices?

Mr. LYMAN. How recently was the last quotation? What was the difference in the period?

Mr. CALDERHEAD. The last week in October.

Mr. LYMAN. And were they both made at the same time, or practically the same time, or was there a period of six months in between?

Mr. CALDERHEAD. Oh, no; the other one was made the second week in August. The contract for $2.14 was made the second week in August. The contract at $2.08 was made between that time and the last week in October; and the offer of paper at $2.85 and $2.87 was in the last week in October. It all occurred within that short time. How did it come that there was such a wide range in the prices?

Mr. LYMAN. There has been a very great curtailment of production during the last three or four months.

Mr. CALDERHEAD. But how did it come that in sixty days there was such a wide range in prices?

Mr. LYMAN. It may be that they had not felt the effect of the drought in this particular mill by August; they may have had a surplus and not known how long the drought was going to continue. They may not have realized that it was going to be phenomenal, and may have made a low price accordingly. By the time they got to October——

Mr. CALDERHEAD. Do not misunderstand me. The price of $2.14 was made the second week in August, and the price of $2.08 was made sometime about the 1st of October.

Mr. LYMAN. I thought you were talking about a price of $2.85, or something like that.

Mr. CALDERHEAD. And the price of $2.85 was made the last week in October.

Mr. LYMAN. I have no doubt that the explanation is perfectly simple to anybody who knows the facts; but I do not know why it was. I do not think I am qualified to guess about a situation when I know so little about it.

Mr. CALDERHEAD. If there could be such a range within sixty days on a staple article of that kind, what good does the tariff do?

Mr. LYMAN. Of course it goes without saying that the tariff having remained the same, there could be no effect of the tariff on that. That is perfectly patent.

Mr. GRIGGS. The exportations of paper were, in quantity, 120,090,000 pounds, valued at $3,514,281 in the last year—the year to which this book refers.

Mr. LYMAN. The exportations of paper?

Mr. GRIGGS. Yes. Can you explain to me how they could do that?

Mr. LYMAN. Foreign business is generally based on pretty long contracts; and the conditions that prevail when you make your con-

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tracts for shipment to Australia, for instance, may be entirely different from the conditions which prevail when you are making your final deliveries.

Mr. GRIGGS. In round numbers, 49,000,000 pounds were exported to Canada.

Mr. LYMAN. Exported to Canada?

Mr. GRIGGS. Yes.

Mr. LYMAN. No; not from the United States.

Mr. GRIGGS. 48,810,734 pounds.

Mr. LYMAN. Of paper exported to Canada?

Mr. GRIGGS. Yes, sir; printing paper at that.

Mr. LYMAN. I do not think that is accurate. Forty-nine million pounds is 25,000 tons; and if it is printing paper it is not news paper. There is no news paper exported.

Mr. GRIGGS. It is a printing paper, which includes news paper, magazine, book, plate, lithograph, music, and other kinds of paper.

Mr. LYMAN. It may be some of those things—hanging paper, or lithograph paper, or something of that kind.

Mr. GRIGGS. It does not include that.

Mr. LYMAN. But it is not news paper. I do not think there has been any news paper sent to Canada at all. They have a duty of 15 per cent against us.

Mr. GRIGGS. You think you can not compete with them, now, with that duty?

Mr. LYMAN. I know that when we fear their competition here, we are not likely to be in a position to go over there with our paper.

Mr. GRIGGS. Do you not think you are a little too much afraid of each other on each side of the line? I know that when I go over to Canada they are very much afraid of the Yankees.

Mr. LYMAN. Yes.

Mr. GRIGGS. And when I talk to a Yankee down here, he is very much afraid of the Canadians. Can not you and I agree on that? Let us agree on one thing to-night.

Mr. LYMAN. If you and I should fix it up somewhat, that would be in the nature of a compromise. I do not think that our apprehension is ungrounded. We have a great deal at stake.

Mr. GRIGGS. Do you think their apprehensions ungrounded?

Mr. LYMAN. Oh, if you took the duty off there, there would be no paper going up there except through a deliberate move to kill them, which other countries used to do to us before we had the duty.

Mr. GRIGGS. Suppose we took the duty off here—there would be nothing coming here except through a deliberate move to kill us, would there? The reverse is true, is it not?

Mr. LYMAN. Oh, no. They are making a surplus, a great deal more than they require, over there; and they have got to place it over here.

The CHAIRMAN. Are there any further questions? If not, that is all.

I want to say right here that the committee will adjourn at fifteen minutes before 12 o'clock; and gentlemen who are not heard will have to avail themselves of the privilege of filing a brief to be printed in the record.

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STATEMENT OF MR. DAVID S. COWLES, OF NEW YORK, N. Y.

The CHAIRMAN What is your residence?

Mr. COWLES. New York, sir.

The CHAIRMAN. Proceed, Mr. Cowles.

Mr. COWLES. Mr. Chairman and gentlemen, what I have to say will not take more than about five minutes.

The CHAIRMAN. You can not always tell about that.

Mr. COWLES. I feel that the amount of data that the special investigating committee has collected covers practically all the points that this committee may require, so far as statistics are concerned. But there are a few questions of general policy which I think enter into this whole question even more, perhaps, than statistics do, and with your consent I should like to suggest one or two of them.

The tariff laws of the United States are framed to provide revenue for the Government and to protect, and thereby develop, the industries of the country and give constant and profitable employment to both capital and labor. The Republican party has pledged itself to a revision of the tariff along these lines, but not in any way in departure from them. It does not stand for free trade or for a tariff for revenue only. Excessive rates should undoubtedly be reduced if it be proven that such rates exist, but no industry should be singled out for destruction at the demand of some other interest, no matter how powerful and influential that interest may be. The present tariff rates on pulp and paper are equivalent to 10 per cent on ground wood pulp and 15 per cent on news-print paper. If the entire tariff were framed for revenue only, and the protective feature were eliminated, the rates on pulp and paper could not be lower. The demand for free pulp and paper was and is made upon the charge that there is an illegal combination in restraint of trade among manufacturers of pulp and news print in this country, and added to that the unsubstantiated argument that the country must have free pulp and paper in order to preserve the American forests. A most searching investigation by a special committee of Congress developed that the first charge was false and the other erroneous. It is a well-known fact that the manufacture of wood pulp and news-print paper has not in the past and does not now return 5 per cent per annum upon the capital invested in the industry. A removal of the present duty would result in the rapid liquidation of the industry, destruction of the forest lands owned in the United States by the manufacturers of news print, a great loss of invested capital, labor thrown out of employment, and numerous towns and villages which have grown up around paper-making centers and dependent upon them being wiped out.

It must be remembered that the manufacture of news print is based upon water power, and the proximity of such powers to spruce forests. These conditions are found back in the woods, so to speak, and where these manufacturing plants have been developed communities have grown up around them and are dependent upon them. It is not only the capital invested in the industry which would be destroyed and the labor employed thrown out of employment, but the value of real estate in lands and houses and the business of the storekeepers and merchants would be depreciated, and ruin to many the inevitable consequence.

It is not my purpose to reiterate the details of facts and figures which are furnished in the statement of Mr. Chester W. Lyman of

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the International Paper Company, further than to say that my knowledge of conditions, and familiarity with the paper-making industry, leads me to indorse fully what he has stated, with one exception, that my companies make better paper than his do, and where he gets 2¼ cents we should receive 2.35.

Mr. GRIGGS. You do not indorse that statement?

Mr. COWLES. I say I do not indorse the statement that his paper is superior.

I wish to bring prominently to your attention that the danger to the paper-making industry in this country is not alone from cheaper wood in Canada and cheaper wood and low-paid labor in Europe, but from English and European capital, which is satisfied with a return upon its investment on which we in America can not live. It is a well-known fact that in the old countries capital has been accumulating for hundreds of years, and a return of 3 per cent per annum, or 4 per cent at most, is considered a satisfactory return. Where capital can be commanded for manufacturing and trading purposes at such rates, the wages of labor fall to the starvation point. This may seem an extraordinary statement to many, but it is a fact, notwithstanding. When invested capital is insufficiently remunerative, it inevitably leads to a readjustment of wages and other costs of production. Capital and labor go up and down together. If the employment of capital secures an adequate return, capital does not begrudge high pay to labor. If capital is pinched and reduced in earning capacity, the corners are cut, further development ceases, strict economies of all kinds are enforced, and wages and hours quickly feel the depressing influence. We can not stand in this country low and inadequate returns on capital any more than we can stand low wages and long hours of labor. The two go together. It is a law of trade that capital and labor prosper or suffer together. The cheap capital of Europe invested outside of the United States, if its product is admitted free, is as fatal to American industries and American labor as the cheap labor of China. If, therefore, the small tariff protection which the American paper maker has should be taken from him, the consequence would be that the cheap capital of Europe would destroy both the capital and labor invested in the paper-making industry in America.

It has been charged that paper making is destructive of the forests. My companies are owners of large tracts of timber lands. These lands are the basis of all of our operations. They are our raw material, and upon their preservation depends our position in the industry and the earnings of our capital. They are cut strictly according to the best known forestry methods practicable in this country at the present time, under the supervision of an educated forester, and are cut so as to not only secure a supply of pulp wood, but so as to facilitate and increase the growth of the forest. In cutting for pulp wood not less than 25 per cent more wood is utilized on the average from each tree than is the case where the same forest is cut for lumber purposes, because the log is brought out up to a 5-inch, and in some cases 4-inch top, as against an 8-inch top for sawing lumber.

What is true of our operations is in the main true of the industry at large where interested in timber lands. The present tariff rates have been in existence for many years. They have worked no injustice to anyone. They are about the lowest in the whole list, have

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been used for no improper purpose, to remove them or lessen them would be an unwarranted injustice and bring ruin to a great industry. If, by any chance, the great paper-making industry should be transferred to Canada, or other foreign land, I would remind the newspaper publishers who are urging free pulp and free paper that under the British flag the Sherman antitrust laws do not run, and that combinations to advance the price of commodities exported to foreign lands are both approved and encouraged.

Attached to this memorandum is a detailed statement showing the percentage of increase in wages which my own mills are now paying as compared to the wages paid in 1898.

Scale of wages, Lisbon Falls Fiber Company and Pejepscot Paper Company, pulp and paper mills.

	1898.[a]	1900.	1903.	1908.[b]
Machine tenders	$3.00–3.25	$3.50	$3.75	$3.75
Second hands	1.75	2.00	2.50	2.50
Third hands	1.35	1.50	1.75	1.75
Fourth hands		1.50	1.50	1.50
Fifth hands			1.50	1.50
Engineer beaters	2.00	2.25	2.25	2.25
Assistant beaters	1.50–1.35	1.50–1.35	1.50	1.50
Steam engineers		2.50	2.50	3.00
Assistant engineers		2.25	2.50	2.50
Firemen		1.75	1.90	2.50–2.25
Finishers:				
Boss	2.00	2.25–2.00	2.25–2.00	3.00–2.50
Helpers	1.50	1.50	1.50	1.65
Wood room	1.50	1.50	1.50	1.65
Grinders and screens	1.50	1.50	1.50	1.60
Outside	1.25	1.25	1.50	1.50
Repair men				
Boss	2.50	2.75	3.00	3.00
Machinists	2.25	2.25	2.50	3.00
Carpenters	2.00	1.75–2.25	2.00–2.25	2.25
Acid maker	2.00	2.00	2.25	2.25
Cookers	2.00	2.25	2.50	2.50

[a] Two turns. [b] Three turns.

July 1, 1901, paper mills on sixty-five hours week; April 1, 1907, paper mills went on three tours.

Scale of wages, Lisbon Falls Fiber Company and Pejepscot Paper Company, pulp and paper mills, on twelve-hour, ten-hour, and eight-hour basis.

	1898.	1900.	1903.	1908.	Increase.
	12 hours.	*12 hours.*	*10 hours*	*8 hours.*	*Per cent.*
Machine tenders	$0.27	$0.29½	$0.37 9/10	$0.46 9/10	73.70
Second hands	.14 9/10	.16¾	.25	.31¼	114.64
Third hands	.11¼	.12½	.17 1/10	.21 9/10	94.07
Fourth hands			.15	.18¾	25.00
Fifth hands			.15	.18¾	25.00
Engineer beaters	.16⅜	.18¾	.22 9/10	.28¼	68.70
Assistant beaters	.11¼	.12½	.15	.18¾	66.66
Firemen		.14½	.19	.28⅛	93.97
Grinders and screens	.12½	.12½	.15	.20	60.00
Acid maker	.16⅜	.16⅜	.22½	.28⅛	68.76
Cookers	.16⅜	.16⅜	.25	.31¼	87.58
Finishers:	*10 hours.*	*10 hours.*			
Boss	.20	.20	.20	.31¼	56.25
Helpers	.15	.15	.15	.20 9/10	37.33
Wood room	.15	.15	.15	.20	33.33
Outside	.12½	.12½	.15	.18¾	50.00
Boss	.25	.27½	.30	.37½	50.00
Machinist	.22½	.22½	.25	.37½	66.66
Carpenters	.20	.22½	.22½	.28⅛	40.63
	12 hours.	*12 hours.*	*12 hours.*	*12 hours.*	
Steam engineers		.20 1/10	.20 9/10	.31¼	50.24
Assistant engineers		.18 7/10	.20 9/10	.20 9/10	11.23

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Mr. UNDERWOOD. You referred to the Sherman antitrust law as being injurious to your business. How does that affect it?

Mr. COWLES. I say that it does not prevail in Canada, and that if the industry is wiped out in this country and transferred to Canada the Canadian manufacturers can make all the combinations to advance prices they please and compel the publishers in this country to pay whatever price they choose to ask, because the publisher will have no relief from American manufacture after American manufacture has once been terminated here.

Mr. UNDERWOOD. Do you think that if we had absolute free trade on wood pulp and paper between this country and Canada it would wipe out the International Paper Company?

Mr. COWLES. I think it would very seriously jeopardize its existence; yes, sir—that is, its property. It might go through a reorganization or liquidation and get fresh capital. It would wipe out a large amount of its investment. There is not any question about that.

Mr. UNDERWOOD. Wherein would it need fresh capital?

Mr. COWLES. Where would it need it?

Mr. UNDERWOOD. Yes.

Mr. COWLES. To build mills in Canada, if you please.

Mr. UNDERWOOD. But I am talking about the International Paper Company as run in America.

Mr. COWLES. I think that free pulp and paper would, in a comparatively short time, terminate the making of news paper in this country. That is what I think, sir. It would destroy the value of existing plants.

Mr. UNDERWOOD. I wanted your judgment on the matter. I asked you for your judgment.

Mr. GRIGGS. Are you not continually adding to your forest holdings?

Mr. COWLES. Yes, sir; as much as we can.

Mr. GRIGGS. Just as the sawmill men do—you buy all the land you can adjoining you?

Mr. COWLES. I think that is a wise proposition. It is our raw material, and if we are going to stay in the business we have got to have the raw material.

Mr. GRIGGS. Do you not pay for that out of the earnings of your company?

Mr. COWLES. Sometimes yes, and sometimes no.

Mr. GRIGGS. As a general proposition?

Mr. COWLES. We have not had enough earnings recently to enable us to pay for very much timber land out of them.

Mr. GRIGGS. That is simply last year; we all understand that.

Mr. COWLES. Yes; but I am speaking of a period extending over the last three or four years. If you go back five years, or go back ten years, the industry has not been a profitable industry.

Mr. GRIGGS. Did you not have good times in 1897, 1896, 1895, and 1894?

Mr. COWLES. Yes, sir. There have been short periods when we had a fairly satisfactory price; but almost invariably before that condition came about the paper industry had put its product under contract for a long term of months, and did not profit by it.

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Mr. GRIGGS. I will put that question in another form: Do you not put a large part of your earnings into the purchase of additional land?

Mr. COWLES. Yes, sir; we do. I will not say necessarily into the purchase of land, either, but back again into our business; yes, sir.

Mr. GRIGGS. And you do not count that in your profits? What you put back into the business you do not count in your profits at all?

Mr. COWLES. Oh, yes; we do. It shows as part of our profits; but what goes into increased real estate and plant simply increases our holdings.

Mr. GRIGGS. I understand that; and you only show us your dividends? You only make an exhibit of your dividends?

Mr. COWLES. Oh, no; we do not make any exhibit at all. We are not a public corporation. We are a close corporation. We do not make any public report.

Mr. GRIGGS. I understand that you make no public report; but I presume you are willing to reply to the questions of the committee, like the gentlemen who have preceded you?

Mr. COWLES. I know precisely at the end of each month what we make, and at the end of each six months, and at the end of each twelve months.

Mr. GRIGGS. If you put a large part of that back into land holdings——

Mr. COWLES. It shows on the balance sheet; yes, sir.

Mr. GRIGGS (continuing). Then, out of that part which is left, you determine what your dividends shall be, preserving the working capital?

Mr. COWLES. Why, certainly; we determine what dividends we shall pay, of course.

Mr. GRIGGS. You are worth that much more every year, then, are you not?

Mr. COWLES. Certainly. That is what you call saving money.

Mr. GRIGGS. Then you have made that much more?

Mr. COWLES. You have made that much money; yes. If you have reinvested it in the business you have got it at risk in your business. You have not taken it out and put it into something else where it is not in jeopardy, but it has gone back again into your business and is at that risk.

Mr. CLARK. When they talk about dividends here, they do not count the enhanced value of the property in with the dividends?

Mr. COWLES. I do not hear you, Mr. Clark.

Mr. CLARK. I say, when Mr. Hastings and the rest of them talk about dividends they do not count this enhanced value of the property in with the dividends; so that that answer is misleading. For instance, it is said that they only declared a 5 per cent dividend.

Mr. COWLES. When I say 5 per cent I mean net earnings. I do not mean a 5 per cent dividend.

Mr. CLARK. When you talk about 5 per cent net earnings, do you count in this increased value of your property and your increased holdings?

Mr. COWLES. Yes, sir. If I have $7,000,000 in my properties and I make $350,000 gross profit, and net profit, too, if you please, I have earned 5 per cent on my $7,000,000.

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Mr. CLARK. Yes.

Mr. COWLES. I might distribute half of that as dividends and leave the rest in the business; but my earning on my invested capital would be simply 5 per cent.

Mr. GRIGGS. How long have you been in the paper business, Mr. Cowles?

Mr. COWLES. I have been in the paper business for sixteen or seventeen years.

Mr. GRIGGS. Did you have much money when you went into it?

Mr. COWLES. I had more money than I have now.

Mr. GRIGGS. Did you lose it in the paper business?

Mr. COWLES. I lost a good deal of it; yes—all that I lost, I did.

Mr. GRIGGS. You state that as a fact, to go in the record?

Mr. COWLES. Well, perhaps that is a little extreme. The first two or three years that I was in the paper business I think it cost me about $250,000 or $300,000.

Mr. GRIGGS. You are worth more now, though, than you were when you started?

Mr. COWLES. Yes; I am.

Mr. GRIGGS. I am glad to hear that.

Mr. COWLES. Thank you.

Mr. CLARK. You are worth several million dollars more, are you not?

Mr. COWLES. Well, I do not think that has any bearing on the question of the tariff.

Mr. CLARK. Well, it does have a bearing on the question of profits, and what this committee is really trying to do is to get at the facts. I would not do you an injustice a bit quicker than the chairman of this committee would.

Mr. COWLES. Mr. Clark, it is a very curious thing, but both before the investigating committee and before this committee there has been a wonderful curiosity as to how much the paper-making industry earns. I have never heard the question asked as to how much the newspapers earn, and I can tell you that for every dollar that the paper-making industry earns the newspapers earn $1,000.

Mr. CLARK. If I were investigating the newspapers on the tariff question, if there was any tariff that affected them, I would go after them as I go after you, or as I tried to go after Mr. Hastings. I will tell you how we get to believe that there are enormous profits made in the paper business. If you print a thing often enough, people get to believe it, and one of two things is absolutely true. Either you have made enormous profits or all of these newspaper men in the United States that have been yelling around on this subject are either a lot of imbeciles or a lot of liars—one of the two.

Mr. COWLES. I would not call them either thing myself [laughter]; but I would say this: The whole movement, from the time it started up to the present time, is nothing but a persistent, concerted, deliberate bear movement on the paper market. It is to put down the price of news-print paper, and for no other purpose.

Mr. CLARK. I was simply telling you how people get the idea that there are these enormous profits.

Mr. COWLES. If the paper trade got together in a combination as the newspapers have, and undertook to put up the price of news paper, you would hear a howl; but they can get together to ruin our

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properties and drive our laboring people out of employment, and they can make our villages of no utility or use, and all that sort of thing.

Mr. GRIGGS. We were not appointed to investigate that, and do not want you to get that idea. We were appointed to investigate the tariff.

Mr. COWLES. Yes, sir.

Mr. GRIGGS. And you voluntarily came before us as a witness to offer some information that you thought we did not have. You understand that, do you not?

Mr. COWLES. Yes.

Mr. GRIGGS. And when we inquire for that information you ought not to get excited.

Mr. COWLES. I am not excited at all. [Laughter.]

Mr. GRIGGS. We are simply making straightforward, honest inquiries.

Mr. COWLES. Yes.

Mr. GRIGGS. If they may seem to strike too deep, of course we are sorry; but we have to know the facts, if we can get them. You are the only gentleman here to-night, at least since I came in, out of whom we have been able to extract any sort of information. I want to give you that much of a compliment. [Laughter.]

The CHAIRMAN. Of course newspapers are absolutely protected. There is a wall around the United States, and you can not get any foreign papers in. It does not require any tariff to protect them.

Mr. COWLES. Let me say something to you, Mr. Payne, and perhaps it will clear up that question in a way. Paper making was an industry in the United States long before paper making was ever thought of in Canada. There has never been a time to my knowledge when there has not been sufficient news paper produced in the United States to supply the entire consumption of the newspapers, excepting, perhaps, a little temporary, short period when there might be a drought or some strange and unusual condition—a Spanish war or a Boer war, or something of that kind—and a temporary scarcity. The same thing might occur in any market—the wheat market, the sugar market, the cotton market, or any other market. There has never been a time when the productive capacity of news paper in the United States was not ample to supply all of the newspapers. Now, why do not the newspapers buy Canadian paper. To-day only a comparatively small amount of the product that is made in Canada is consumed there, and the balance is exported. They do not buy Canadian paper for the simple reason that they can buy American paper cheaper. There is no other reason.

Mr. CLARK. But they have to pay that $6 tariff to get it in here.

Mr. COWLES. No; they can buy it cheaper as it stands to-day.

Mr. GRIGGS. Follow up that idea for a word or two, please.

Mr. COWLES. They can get their paper to-day cheaper in America than they can import the Canadian paper.

Mr. GRIGGS. Why do you need a tariff?

Mr. COWLES. I beg your pardon?

Mr. GRIGGS. Why do you need the duty?

Mr. COWLES. Because we do not want the Canadian paper to come in and demoralize our market. It is not a question, simply, of the

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duty. Anybody who is familiar with markets knows perfectly well that a small surplus of 10 or 15 per cent will knock the remaining 90 per cent or 85 per cent into a cocked hat. If the duty was off of the Canadian paper and the Canadian paper was brought into this country, Mr. Norris would get his quotation from a Canadian mill, and he would play that against the American mill. He would get a quotation from the American mill and would go back to the Canadian mill and would play the one against the other; and he would get it down to a point where both of them would be too sick to go any further, and then he would make his contract. That is the way those things work. It is not a question altogether of the amount of duty.

Mr. RANDELL. That would be competition.

Mr. COWLES. Yes; destructive competition.

Mr. CLARK. I want to ask you one more question. I do not know how much you have studied about it; but you know they have to raise so much money out of the tariff in order to run the Government. Do you think, in the light of what you have heard and read, that the paper industry pays its fair proportion of the revenues of the Government with this $6 tariff on it?

Mr. COWLES. I will answer that in this way: I think they do, because I do not see any reason, when an industry has grown up in a country and is adequate to supply the market with the material required, why it should be sacrificed to let a foreign product in for the purpose of creating an artificial revenue which does not naturally and properly belong to the Government; but if that is going to be done, why not let the newspapers pay their share? There is a grand, good opportunity for them to contribute to the prosperity of the Government. They do not pay any duty on anything. Let them go and buy some Canadian paper and bring it in.

Mr. CLARK. The trouble about that is exactly what the chairman suggested. There is no man on earth that has got sense enough to get a tariff out of newspapers, because there are no newspapers imported. We get revenue out of the tariff system on what comes in and not on what is shut out.

Mr. COWLES. But we do pay considerable duty.

Mr. CLARK. Oh, I know you do.

Mr. COWLES. I mean we buy and use articles which enter into the cost of manufacture and that are a part of the manufacture, and we pay duties to the Government.

Mr. GRIGGS. But you tax that against the ultimate consumer.

Mr. COWLES. Sometimes, no. Sometimes the consumers get their paper for less than it costs us to make it.

Mr GRIGGS. But you try to.

Mr. COWLES. We try to; yes.

The CHAIRMAN. Are there any other gentlemen to be heard?

Mr. HASTINGS. Mr. Chairman, may I suggest that we have one or two of the men who manufacture sulphite, which is a component part of the news paper? None of them have been heard.

The CHAIRMAN. Very well.

Mr. HASTINGS. Then I would like to have Mr. Weber address you, and also Mr. Steele.

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STATEMENT OF MR. O. L. E. WEBER.

Mr. WEBER. Mr. Chairman and gentlemen, we occupy the peculiar position, or I do, of representing here the small mill that manufactures a high grade of Mitscherlich sulphite (so called after the name of the inventor of the process), but that has little to do with the entire process as a whole. Our production is comparatively small, manufactured in the United States. In view of the striking statement that has been made by Mr. Norris, that the European pulp can be made so advantageously and cheaply, and that our mills are not modern, and that we should look to them for relief, I would suggest that if Mr. Norris has any information which he can give to the sulphite manufacturers of this country tending to cheapen production, by means of their processes, I think he would be doing a great service to us.

Now, Mr. Chairman, in the brief that we have here, I say:

We, the Michigan Sulphite Fiber Company, together with the Great Northern Paper Company, Madison, Me.; the Dexter Sulphite Pulp and Paper Company, Dexter, N. Y.; the Interlake Pulp and Paper Company, Interlake, Wis.; the Detroit Sulphite Pulp and Paper Company, Detroit, Mich.; the Fletcher Paper Company, Alpena, Mich., from the years 1884 to 1889 built 6 mills for the production of sulphite by the Mitscherlich process.

To-day only 2 of these mills are making pulp for the market, the others having gone into the manufacture of paper, owing to foreign competition under the present duties.

To produce the high grade made by these mills requires additional labor for strength of stock by reason of the process employed, still more labor to obtain uniformity, and almost double the labor cost of ordinary grades for cleanliness, so that the total labor cost in making the high-grade sulphites amounts to at least $11 per ton, which the European obtains at from 35 per cent to 50 per cent of this figure (see reference sheet No. 1), which gives him an advantage of from $5.50 to $7.25 per ton above the American manufacturers in labor cost alone.

The best argument that it is impossible to manufacture these high-grade sulphites on this side is that practically none of it is being made here, while the Europeans have built nineteen new mills in the years 1907 and 1908, on which we have reports (see reference sheet No. 2), aggregating a yearly increase in production of 244,000 tons, to say nothing of the present mills which have largely increased their capacities.

According to European authorities, such as Mr. Dorenfeldt, this rate of increase is likely to continue for some years to come, or until the American market has been absorbed. (See reference sheet No. 3.) This is shown by the fact that the imports of unbleached sulphite from Europe alone during the year 1906 were 12,922 tons and during 1907 were 50,962 tons, or an increase of nearly 400 per cent.

In 1908, notwithstanding the fact that the consumers of sulphite, or the paper mills of this country, were shut down, due to lack of business, to about 45 per cent of their production, and American and Canadian sulphite mills were idle even a greater proportion of time, the imports of European sulphites showed no decrease, as is evidenced

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by the importation of about 28,000 tons of unbleached sulphite for the first seven months of this year at prices which American sulphite mills were unable to compete with, although many of them went down to costs in their desperate efforts to secure business, without avail. In evidence of this we beg to submit letters and prices under reference sheet No. 4, in which you will note that sulphite is being offered for present delivery and 1909 delivery at from $1.80 to $2.08 per 100 pounds exdock New York for the strongest grades, which is lower than we can possibly manufacture for.

We are not alone in our opinion of the seriousness of European competition. Mr. H. H. Everard, an expert in the manufacture of sulphite who has recently made a trip to Europe expressly to investigate conditions on the Continent, in a letter dated November 14, 1908 (see reference sheet No. 6), states in part:

I was very much surprised to find the very best apparatus, all of the modern improvements and latest inventions, quite generally in use. I was informed also that not less than $20,000,000 in capital had been invested during the years of 1906 and 1907 in the building and equipping of new sulphite mills in Norway, Sweden, and Finland. This capital is furnished very largely by English companies. The Germans are making very large investments also in Finland.

It is impossible for the mills of this country to compete with the foreign mills in the production of the higher qualities of sulphite with our present wage scale. Unless there is a liberal increase in the present tariff we will be forced to abandon all efforts to produce the high-grade, strong sulphite. I am confident that an increase of one-sixth cent per pound duty on the European sulphite will not deter the Scandinavian product reaching our market at the present delivered prices.

Mr. James E. Campbell, secretary and treasurer of the Dexter Sulphite Pulp and Paper Company, in a letter under date of November 16, 1908, states:

As far as our company is concerned, I wish to say that the costs not only of labor but also of raw materials have advanced to such an extent that we are powerless to meet the foreign competition on sulphite. For instance, two paper mills at Brownville, within 3 miles of our mill, and one paper mill at Watertown, within 7 miles of our mill, have not bought any of our sulphite for eighteen months. These two accounts used to average about $8,000 per month. We have done everything in our power to get these paper mills back on our sulphite, and they are perfectly willing to use our product in the same quantities that they have always used it, provided we will meet the price on the foreign sulphite. These mills that I speak of are buying their Mitscherlich sulphite from Germany and Norway, and we wish you to fully appreciate that fact—that the prices which they have had and are having their sulphite delivered at these points are below our cost at the mill. (See letter in full under reference sheet No. 7.)

It is our belief that the mills of this country are entitled to a sufficient protection against European labor to enable them to make a reasonable profit, and while we are justly entitled to and had intended to ask for an increase in duty on the higher grades of sulphite, we find practical difficulties in differentiating grades at this time, and would, therefore, urgently request that no changes be made in the direction of lowering duties. We have endeavored to bring out only the principal reasons why American mills are unable to compete on high-grade sulphites under the present tariff. We shall be very glad to forward such additional information as we may have in our possession on any other phase of this subject as you may require.

All of which is respectfully submitted by

THE MICHIGAN SULPHITE FIBER COMPANY.

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REFERENCE SHEET No. 1.

Name.	Present position.	Wages per week.	European position.	Wages per week.	Per cent of American wages.
Albert Engler	Machinist	$16.50	Machinist	$7.50	45
Chas. Helwig	Machine tender	14.40	Machine tender	7.50	52
Frank Kabolnick	Cook	16.80	Cook	5.04	30
Otto Richert	Reel tender	11.40	Beater man	2.52	22
Jake Glombowski	Bin trimmer	9.60	....do	2.52	26
Jos. Glombowski	Cook's helper	10.60	Rag cutter	2.60	25
Marin Zellan	Barker	9.60	Straw cooker	3.60	38
M. Minkowski	Screen tender	11.40	Watchman	3.00	26
John Feidler	Cook's helper	10.80	Bleach man	2.70	25
Albert Sieg	Laborer	9.00	Laborer	3.78	42
Michael Kern	Digester man	12.00	Fireman	5.04	42
John Ordowski	Laborer	9.00	Laborer	3.75	42
		141.10		49.55	35

The wages per week have all been figured on the same number of hours per week. In some instances the wages for Europe have increased somewhat, these men inform us.

REFERENCE SHEET No. 2.

Partial list of European sulphite mills building and built in years 1907–8.

RECAPITULATION.

[See details following pages.]

	Tons.
1908	140,000
1909	44,000
13 new mills, at 10,000 tons each	130,000
2 increases, at 3,000 tons each	6,000
	420,000
Average per year rate of increase	140,000
Increase per year for 1907 and 1908	244,000

Name of mill.	Location.	Tonnage per year.	Year.
Sulphite mill	Svartvik	(a)	1907
Borga Sulphite Mill	Finland	(a)	1907
Kissakoski Sulphate Pulp Mill	Kissakoski	(a)	1907
Abo Sulphate Mill	Finland	(a)	1907
Logo Sulphite Mill	Logo	(a)	1907
Hurinn Sulphate Mill	Sweden	(a)	1907
Salboda Mill	....do	(a)	1907
Molmbacka-Trysit	....do	(a)	1907
Waldhof Sulphite Pulp Mill	Waldhof	(b)	1907
Gutzeits Sulphate Pulp Mill	Gutzeits	(b)	1907
Aktieselskabet Greaker Celluosafabrick	Greaker Sta. on the Glommen	a 18,000	1908
Wifstavarfs Aktiebolog		20,000	1908
Kellner-Partington Mill	Borregaard	20,000	1908
Aktieselskabet Kotka Celluosafabrick	Kotka	20,000	1908
Sanda Sagverks Aktiebolog	Dal	10,000	1908
Kemitravorn Aktiebolog	Kemi	13,000	1908
Toten Sulphite Pulp Mill (Incorporated)		6,000	1908
Tofte Sulphite Mill (Incorporated)	Tofte	15,000	1908
Capt. Felbenannan Mill	Lahtes	(a)	1908
Skonvik Aktiebolog	Sweden	(a)	1908
Svano Aktiebolog	Svano	18,000	1908
Halla Sulphate Pulp Mill	Halla	(b)	1908
		140,000	
Sulphite mill	Gulskogen, Norway	12,000	1909
Sunds Aktiebolog		12,000	1909
Consulweise's Mill	Fredrikstad	20,000	1909
Sulphite Mill Aktieselskabet	Kramfors	(a)	1909
Molvens Celluosafabrick	Lake Mjosen	(a)	1909
Aktiebolaget Pulp Mill	Willmonstrand	(a)	1909
		44,000	

a New mills. b Increased.

Eight new mills and 2 increases in 1907; 2 new mills and 1 increase in 1908.

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Reference Sheet No. 2—Continued.

Name of mill.	Location.	Reference.
Sulphite mill	Svartvik	Paper Mill, October 31, 1908 (p. 12), by M. Villiers, British consul's annual report for 1907.
Borga Sulphite Mill	Finland	British Paper Maker, July 1, 1907 (p. 29).
Kissakoski Sulphate Pulp mill.	Kissakoski	British Paper Maker, September, 1907 (p. 303).
Abo Sulphate Mill	Finland	British Paper Maker, July, 1907 (p. 29).
Logo Sulphite Mill	Logo	British Paper Maker, September, 1907 (p. 303).
Hurinn Sulphate Mill	Sweden	British Paper Maker, July, 1907 (p. 27).
Salboda Mill	do	British Paper Maker, July, 1907 (p. 19).
Molmbacka-Trysit	do	Do.
Waldhof Sulphite Pulp Mill	Waldhof	British Paper Maker, November, 1907 (p. 608).
Gutzeits Sulphite Pulp Mill	Gutzeits	British Paper Maker, October, 1907 (p. 453).
Aktieselskabet Greaker Cellulosafabrick.	Greaker Sta. on the Glommen.	British Paper Maker, July, 1908 (p. 5).
Wifstavarfs Aktiebolog		Paper Mill, October 31, 1908 (p 12), by M. Villiers.
Kellner-Partington Mill	Borregaard	British Paper Maker, October, 1907 (p. 443).
Aktieselskabet Kotka Cellulosafabrick.	Kotka	Do.
Sauda Sagverka Aktiebolog	Dal	British Paper Maker, November, 1907 (p. 599).
Kemitravorn Aktiebolog	Kemi	British Paper Maker, September, 1907 (p. 303).
Toten Sulphite Pulp Mill		British Paper Maker, October, 1907 (p. 443).
Tofte Sulphite Mill	Tofte	British Paper Maker, November, 1907 (p. 606).
Capt. Felbennan Mill	Lahtes	Do.
Skonvik Aktiebolog		Paper Mill, October 31, 1908 (p. —).
Svano Aktiebolog	Svano	British Paper Maker, June, 1908 (p. 772).
Halla Sulphate Pulp Mill	Halla	British Paper Maker, October, 1907 (p. 451).
Sulphite mill	Gulskogen, Norway.	British Paper Maker, July, 1908 (p. 5).
Sunds Aktiebolog		Paper Mill, October 31, 1908 (p. 12), M. Villiers.
Consulweise's Mill	Fredrikstad	British Paper Maker, October, 1907 (p. 443).
Aktieselskabet Molvens Cellulosafabrick.	Lake Mjosen	Do.
Aktiebolaget Pulp Mill	Willmonstand	British Paper Maker, November, 1907 (p. 605).
Sulphite mill	Kramfors	British Paper Maker, June, 1908 (p. 779).

REFERENCE SHEET NO. 3.

Mr. Dorenfeldt, who probably knows more about the sulphite trade in Europe than any other man, read the other day before the Norwegian Polytechnic Association a paper on the pyrite market and a proposed extraction works in Norway.

In this paper he used as one of his arguments the following statement, which we quote verbatim from his manuscript:

"The aggregate annual production of sulphite cellulose in Europe will from the end of this year or the beginning of next year be about 1,600,000 tons, of which about 950,000 tons falls to the part of Scandinavia and the Russian and German Baltic provinces. There has lately been a very rapid increase in the output of sulphite cellulose in all the countries which border on the Baltic, and this development will probably continue in the coming years for in those countries where the rivers flow to the Baltic there is a better supply of the raw material for making cellulose, the white pine (*Picea excelsa*), than in the rest of Europe. In any case there is, because of the sparsity of the population, a far greater surplus for sale, and because the cellulose industry allows of the most efficient utilization of small and medium sized logs, the building of new and the extension of old sulphite mills in the countries round the Baltic will most probably proceed in the future even more rapidly than in the past.

"The Norway and the Baltic countries: Sweden, Finland, Russia, and Germany so far as Stettin, will continue the same increase of the production as in the last three to four years, say, an average of 100,000 tons cellulose annually, I feel therefore tolerably convinced."

We have (says "Farmand") asked Mr. Dorenfeldt if he could vouch for these figures, which surprised us by their magnitude, as will probably also be the case with many of our readers. He assured us that he was convinced that the total production was not far from the figures he had given, which were based on reliable sources of information.—The Paper Maker, November 1, 1907 (p. 608).

The Aktien-Gesellschaft für Maschinenpapierfabrikation Aschaffenburg is also doing a splendid business in both sulphite pulp and paper. The big sulphite pulp mill at Tilsit has declared a dividend of 20 per cent.—The Paper Maker, November 1, 1907 (p. 608).

The official statement of the Association of German Cell Stuff Manufacturers, addressed to the Berlin journal mentioned, refers to the fact that Germany produces a

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good deal more cell stuff than the country consumes, and is therefore obliged to seek foreign outlets even (to some extent) at low prices. This necessity is accentuated by the imports of foreign cell stuff, which supply part of the home demand.—The Paper Maker, August 29, 1908 (p. 22).

By Hans Lagerlof:

"It is estimated that the production in Sweden, Norway, and Finland during 1907 will be, for sulphite, 540,000 tons, and for sulphate, 100,000 tons. The increase in the output of sulphite will be 160,000 tons, and for sulphate decidedly more, in comparison, being 45,000 tons, or 45 per cent.—The Paper Maker, February 1, 1908 (p. 213).

REFERENCE SHEET NO. 4.

LONDON, E. C., *October 10, 1908.*

DEAR SIRS: It being arranged with the head office in Hamburg that all business in wood pulp to the United States of America has to be made from here, the Hamburg office has instructed me to make you an offer, and I hereby beg to offer you, subject unsold and subject confirmation on receipt of order, as follows:

1. Bleached sulphite pulp:
   600 tons No. 735, first quality, delivery January–December, 1909, at $49.02.
   600 tons No. 737, first quality, delivery January–December, 1909, at $53.63.
2. Easy bleaching sulphite pulp:
   150 tons No. 590, first quality, delivery October–December, 1908, at $36.90.
   600 tons No. 590, first quality, delivery January–December, 1909, at $36.90.
   300 tons No. 706, first quality, delivery October–December, 1908, at $35.07.
   1,200 tons No. 706, first quality, delivery January–December, 1909, at $35.07.
   300 tons No. 610, first quality, delivery October–December, 1908, at $35.94.
   1,600 tons No. 610, first quality, delivery May–December, 1909, at $35.94.
   800 tons No. 577, first quality, delivery May–December, 1909, at $36.58.
   800 tons No. 5300, second quality, delivery May–December, 1909, at $35.63.
   1,200 tons No. 544, second quality, delivery May–December, 1909, at $33.68.
   150 tons No. 544, second quality, delivery October–December, 1908, at $33.68.
2. Strong sulphite pulp:
   400 tons No. 623, first quality, delivery October–December, 1908, at $32.40.
   800 tons No. 623, first quality, delivery May–December, 1909, at $32.40.
   400 tons No. 576, first quality, delivery October–December, 1908, at $32.40.
   1,200 tons No. 576, first quality, delivery May–December, 1909, at $32.40.
   300 tons No. 598, first quality, delivery October–December, 1908, at $31.86.
   2,000 tons No. 598, first quality, delivery May–December, 1909, at $31.86.
   600 tons No. 5988, semifirst quality, delivery October–December, 1908, at $30.63.
   120 tons No. 5289, second quality, delivery October–December, 1908, at $30.89.
   300 tons No. 5289, second quality, delivery May–December, 1909, at $30.89.
   400 tons No. 599, second quality, delivery October–December, 1908, at $30.57.
   1,200 tons No. 599, second quality, delivery May–December, 1909, at $30.57.
   150 tons No. 541, second quality, delivery October–December, 1908, at $30.57.
   800 tons No. 541, second quality, delivery May–December, 1909, at $30.57.
   550 tons No. 601, second irregular quality, delivery October–December, 1908, at $29.50.
   800 tons No. 601, second irregular quality, delivery May–December, 1909, at $29.50.
3. Knot pulp:
   500 tons No. 602, irregular quality, delivery October–December, 1908, at $21.46.
   600 tons No. 602, irregular quality, delivery May–December, 1909, at $21.46.
4. Soda pulp:
   500 tons No. 638, first strong quality, delivery October–December, 1908, at $30.04.
   1,200 tons No. 638, first strong quality, delivery January–December, 1909, at $30.04.
   400 tons No. 638, first strong quality, delivery October–December, 1908, at $32.61.
   2,400 tons No. 615, first strong quality, delivery January-December, 1909, at $32.61.
   400 tons No. 616, first extra strong quality, delivery October-December, 1908, at $33.68.
   2,400 tons No. 616, first extra strong quality, delivery January-December, 1909, at $33.68.
   400 tons No. 614, "Kraft" strong quality, delivery October-December, 1908, at $32.61.
   2,400 tons No. 614, "Kraft" strong quality, delivery January-December, 1909, at $32.61.

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all per ton of 2,000 pounds gross for net, cost of freight New York, Boston, Philadelphia, Newport News, and (or) Baltimore. Payment in London against B/Lgd. by bankers three months' acceptance, and such payment to be confirmed by the banker on placing contract.

The named prices include no wrapping in hessian, such wrapping being 61 cents per ton more.

I am at the same time sending you each one sample, and I do hope that some of these qualities might suit you and that you are willing to place a contract with me. If you should like to have bigger samples, please let me know of which qualities, and I shall send some by first mail.

Please note that if you want delivery of the following qualities, Nos. 610, 577, 5300, 544, 623, 576, 598, 5988, 5289, 599, 541, 601, and 602 before May, 1909, I must have your order latest end of this month, as the navigation because of ice closes first part of November.

Hoping to be favored with your good news, I remain, dear sirs, yours, faithfully,

ELOF HANSSON.

NOTE.—The dollar price given for short tons of 2,000 pounds instead of long tons of 2,240 pounds given in pounds sterling.

REFERENCE SHEET No. 6.

MUNISING PAPER COMPANY (LIMITED),
Kalamazoo, Mich., November 14, 1908.

Mr. O. L. E. WEBER, *General Manager,*
Michigan Sulphite Fiber Company, Port Huron, Mich.

MY DEAR SIR: Regarding the foreign costs of labor and materials entering into the manufacture of sulphite, I spent most of my vacation during the summer of 1907 among the sulphite mills of Norway and Sweden. As I am quite largely interested in the production of similar goods in this country, I was especially desirous of personally inspecting their methods and ascertaining, if possible, how they are able to sell the higher grades of sulphite in this market at such low prices. I was thoroughly convinced before leaving Sweden that unless there was an increase in our tariff, giving the labor on this side a greater protection, it would be folly to make any further increases in the capacity of our mills, and it would be good wisdom for any man interested in the business on this side to refrain from making further investment, as capital can not be used at a profit in this industry in competition with the lower wages paid in Norway, Sweden, and Finland.

The wages paid to the men in the woods for gathering this spruce will not exceed 50 per cent of the wages paid by Maine, New York, Michigan, Minnesota, or Canadian manufacturers. This would be a fair representation of the cost of all other labor that enters into the manufacture of sulphite in the above-named countries. With this low wage scale, they can well afford to employ a greater number of people in their mills for the purpose of sorting their wood and working out all defects, such as the black knots, small particles of the inner bark, discolored or decayed wood. Following the careful sorting and selecting of the chips, the amount of work used in their process tends to produce a very clean, high-grade, strong sulphite, at a cost not exceeding the most inferior qualities turned out in this country.

I was much surprised to find the very best apparatus, all of the modern improvements and latest inventions, quite generally in use. I was informed also that not less than $20,000,000 in capital had been invested during the years of 1906 and 1907 in the building and equipping of new sulphite mills in Norway, Sweden, and Finland. This capital is furnished very largely by English companies. The Germans are making very large investments also in Finland.

It is impossible for the mills of this country to compete with the foreign mills in the production of the higher qualities of sulphite with our present wage scale. Unless there is a liberal increase in the present tariff we will be forced to abandon all efforts to produce the high-grade strong sulphite. I am confident that an increase of one-sixth cent per pound duty on the European sulphite will not deter the Scandinavian product reaching our market at the present delivered prices.

I hope that the committee who may have charge of this branch of the tariff work will make a thorough investigation of the conditions abroad. I am very sure that they will recommend a large increase in the present tariff on the higher grades of sulphite.

Yours, very truly,

H. H. EVERARD.

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REFERENCE SHEET No. 7.

DEXTER SULPHITE PULP AND PAPER COMPANY,
Dexter, Jefferson County, N. Y., November 16, 1908.

O. L. E. WEBER, Esq.,
Michigan Sulphite Fiber Co., Port Huron, Mich.

MY DEAR MR. WEBER: Your letter of the 14th at hand and carefully noted.

A most important foreign channel for mill information has just opened to me, and taking advantage of my opportunity I have written a letter to my communicant, who is at present in a position as manager of one of the large German mills. I have written him for a detailed list of the wages paid to all the operatives, not only in the mill he is at present managing but also other mills of which he has had charge. It is unfortunate that this information will not be at hand for the 20th, and if possible could you arrange with the committee so that this evidence can be put in when it arrives?

As far as our company is concerned, I wish to say that the cost not only of labor but also of raw materials has advanced to such an extent that we are powerless to meet the foreign competition on sulphite. For instance: Two paper mills at Brownville, within 3 miles of our mill, and one paper mill at Watertown, within 7 miles of our mill, have not bought any of our sulphite for eighteen months. These two accounts used to average about $8,000 per month. We have done everything in our power to get these paper mills back to our sulphite, and they are perfectly willing to use our product in the same quantities that they have always used it providing we will meet the price on the foreign sulphite. These mills that I speak of are buying their Mitscherlich sulphite from Germany and Norway, and we wish you to fully appreciate the fact that the prices which they have had and are having their sulphite delivered at these points are below our cost at the mill.

This situation obtains with practically all of our other customers.

Our daily average production at our sulphite mill for the years 1901 to 1906, inclusive, amounted to about 9,100 tons per year. In 1907 this dropped to 6,516, and in 1908, for the ten months expired, about 5,000 tons production.

This gives you some idea of what we have suffered as far as production goes. In other words, during the years 1901 to 1906 our daily production amounted to 34 tons. It has been reduced in 1908 to 20 tons.

Considering the item of pay roll, our pay roll per ton of product produced in the years 1901 to 1906, inclusive, was $5.366. In 1907 our pay roll was $7.1888; in 1908, $7.28.

Cost of wood.

1901 to 1906, per ton of pulp	$13.28
1907	18.742
1908	23.91

Answering your first question: The only knowledge I have in regard to the building of additional sulphite mills in Europe is what hearsay evidence I obtain.

Answering your second question: If this increased product is produced, the foreign paper market never will be able to absorb it, which means that they will continue dumping sulphite in this country at prices which will practically shut up our mills.

Answering your third question: We do not believe that the depressed business condition has had much influence on the decline in our sale of sulphite. In other words, we believe that the present ruinous condition of prices in the sulphite market is due entirely to foreign importation.

Answering your fourth question: I received but a short while ago an offering of foreign sulphite continuing over the year 1909 at a very low price. At the present time I am not sure of the exact figures, as I sent the letter with the samples to Mr. Barratt, of the Union Bag and Paper Company, for his perusal.

Answering your fifth question: I do not know what other mills in the country can do, but I do not know that our mill can not run at a profit and meet the present foreign competition.

Have already answered questions 6 and 7.

Question 8. I do not know.

Answering question 9: I certainly should differentiate between importations of quick cook and Mitscherlich sulphites. The prevailing differential in this country between these two grades of sulphite has always been about 15 per cent, and I think that the duty should be differentiated on the same basis.

You may use this letter as you see fit, either for evidence or not, and I should be very glad indeed if I could encroach upon your courtesy sufficiently to ask you to represent our mill.

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I would also suggest that you have Mr. Everard at the hearing without fail, as his trip to Europe a short while since places him in position to throw considerable light on the subject.

With very kind regards, and trusting that I may hear from you, I beg to remain,

Yours, very truly,

JAMES E. CAMPBELL.

Mr. J. E. CAMPBELL,
Dexter Sulphite Pulp and Paper Company, Dexter, N. Y.

DEAR SIR: At the recent meeting of the American Pulp and Paper Association I stated that it was the intention of our company (The Michigan Sulphite Fibre Company) to ask for an increase in duty on European high-grade sulphites, for the reason that the paper mill formerly using considerable quantities of our best grades have offers for immediate shipments or on contracts covering the year 1909 for all their requirements, at prices we could not meet at any reasonable profit, quick-cook or direct—indirect being represented as Mitscherlich, when in fact we are advised there are but mighty few Mitscherlich mills in Europe, and few of these exporting to this country.

Our costs for wood, sulphur, coal, and labor have increased during the past ten years about three times as much as the increase in our selling price, and as we can figure out no way to decrease these it is our opinion that the paper mills or the trade using the paper into which our sulphite enters will find it no great hardship to pay the increase which a change of duty will bring about, i. e., one-sixth to one-third of a cent per pound ($3.33 to $6.66 per ton) on unbleached and from one-fourth to five-twelfths of a cent per pound ($5 to $8.33 per ton) on unbleached sulphite of the higher grades.

Inasmuch as I have been asked to appear at Washington on Friday, the 20th, may I ask you to write me at the earliest date possible, addressed to Port Huron, Mich., what your views on the subject are, and if in accordance with ours, may I ask you to give us all the information you can, and especially on the following questions, giving references to authorities:

First. What knowledge have you on the building of additional sulphite mills in Europe, the product of which is intended for this market?

Second. What, in your opinion, will be the effect on mills in this country if this product is imported under the present duties?

Third. Have the European importations affected your sales, or do you attribute the present low prices entirely to the business depression?

Fourth. Do you know that European sulphite has been offered in sufficient quantities on future long-time contracts to seriously affect your prices? (Give particulars if possible.)

Fifth. Can mills in this country run on a reasonable profit if obliged to meet this competition?

Sixth. What do you know as to the wages received by employees in European mills by day, or week, and preferably by the ton of sulphite produced?

Seventh. Have you any information as to the cost of wood per cord, or ton of manufactured product?

Eighth. Do you know of any cases where pulp has been shipped to this country as ballast or on a nominal ocean freight?

Ninth. Would you differentiate between quick-cook, direct-indirect, and Mitscherlich sulphite; and if so, how? Or, on account of practical difficulties and as a manufacturer of Mitscherlich pulp, would you have sulphite declared as above on importing, and ask for the increase in duty on Mitscherlich only for the moral effect?

Kindly give facts and figures as fully as possible and any other information you conveniently can, so that I can have your letter by Tuesday, as data should be prepared Wednesday, following with any further suggestions you might have to make.

Would like to use your letter as evidence if necessary, but will not do so if you do not wish it, using data only for our information.

You understand that I do not presume to represent any of the Mitscherlich mills but our own, although shall be very glad to follow such suggestions as you may have to offer.

As Mr. Everard is pretty well posted on the European situation, I am in hopes he will consent to go to Washington in my place.

Yours, very truly,

MICHIGAN SULPHITE FIBRE CO.,
O. L. E. WEBER, *Manager*.

November 14, 1908.

(Reference Sheet No. 7 is in reply to this letter.)

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REFERENCE SHEET No. 8.

EUROPEAN LABOR.

Statements by employees of the Michigan Sulphite Fibre Company.

I, Charles Helwig, have worked in a paper mill at Danzig, Germany, where I was a machine tender. The machine I ran was about 66 inches in width and ran about 200 feet per minute. I had an oiler or back tender and two reel tenders, same as I have here. In this mill there were two men in the beater room tending nine beaters, and on the whole I think that the amount of help around the mill was about the same as here.

CHAS. HELWIG.

I, Michael Kern, was a fireman in the City Electric Power Plant in Vienna, Austria, where I tended one large boiler with four furnaces. The boiler was about the same size as the No. 5 boiler in this mill, which has four furnaces and is tended by one man. The work over there was about the same as here.

MICHAEL KERN.

I, John Feidler, was a bleach man in the paper mill at Gratwin, Austria, where I mixed all the bleach myself, sometimes with one helper. In this mill they had five upright quick-cook digesters, which were tended by one cook and two helpers, working twelve-hour shifts, same as they do here. In my opinion there was about as much help around that mill as here.

JOHN FEIDLER.

I, Martin Zellan, worked as cook in a mill at Gratwin, Austria, where there were seven straw cookers. There was one cook and two helpers on each shift of twelve hours each.

MARTIN ZELLAN.

I, Frank Kabolnick, worked as a cook foreman in the paper mills at Gratwin, Austria, in the sulphite department. I have also worked at the Kellner-Partington mills, at Hallein, Austria. At Gratwin we have five digesters, which were tended by a cook and four helpers, who filled and emptied the digesters. Here we have a cook and second cook on each shift and six helpers or digester men for emptying and filling, which is exactly the same amount of help to tend the same number of digesters. In my opinion there are about the same number of men to do the same amount of work over there as there are here.

FRANK KABOLNICK.

I, Albert Sieg, was a helper in the sugar mills at Dirschau, Germany. I found that there was not much difference in the amount of work I was required to do there than there is here. I worked from 6 o'clock in the morning till 6 at night, but had an hour for noon and a half hour in the morning and in the afternoon for lunch, which made eleven working hours in all.

ALBERT SIEG.

I, Jacob Glombowski, have worked in a paper mill in Steirmetz, Germany, where I was a beater man. There were four men on the shift tending eight beaters, which we loaded and emptied. This was about the same amount of work I have been accustomed to do here, and I have not noticed any difference in the number of men about a mill in Eurpoe or America of the same size.

JACOB GLOMBOWSKI.

The CHAIRMAN. Is there anyone else to be heard?

Mr. HASTINGS. I would like now to have Mr. George F. Steele, of Port Edwards, Wis., address you.

The CHAIRMAN. We will hear you for five minutes, Mr. Steele.

STATEMENT OF MR. GEORGE F. STEELE, OF PORT EDWARDS, WIS.

Mr. STEELE. Mr. Weber has spoken for the makers of Mitscherlich, on slow-cooked, strong sulphite pulp. The information which he has presented will also serve in large measure to inform you concerning the situation which exists in the making of quick-cooked sulphite pulp, which constitutes by far the larger share of the sulphite pro-

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duced in this country. I desire to present some further information in regard to this branch of the industry.

The total production of sulphite pulp in the United States amounts to 4,000 tons daily, or about 1,200,000 tons annually. The capital employed in the construction of mills, investments in water powers, mill sites, and working capital amounts to about $60,000,000. This does not include the value of timber lands, which would greatly increase the total investment. Excluding the investment in timber lands, the capital is turned over once in about fifteen months, but if sufficient timber land were acquired to enable the owners to practice reforestation the turnover would be considerably slower.

The industry employs from 8,000 to 10,000 men in and around the manufacturing plants, and many more in the woods getting out the timber, transporting it to the mills, and marketing the product.

The output of the industry has increased from 200 tons daily in 1890 to 4,000 tons daily in 1908. Of this amount, about 3,000 tons is made directly into paper by the mills producing it and about 1,000 tons per day are put on the market for sale to paper mills which do not produce their own sulphite.

To give an instance of the cost of establishing a sulphite plant, we will take a mill producing 60 tons of sulphite pulp per day. Such a mill would require about 40,000 cords of spruce or hemlock timber annually, and in order that the land might reproduce the timber as fast as it was used there would be needed theoretically 120,000 acres of land. This estimate is based on spruce land, well timbered and running heavily to spruce, but in practice the amount of land required would be very much greater, owing to the impossibility of obtaining bodies of timber land free from much waste and barren land and tracts covered with other kinds of timber. In the most favored locations this would entail a permanent ownership of about 150,000 acres for a 60-ton sulphite mill. I doubt if such a tract could be obtained in this country to-day at less than $20 per acre, equivalent to an investment in land of $3,000,000.

The cost of equipment of such a sulphite plant and its working capital would be about $900,000, so that we would have a total amount of $3,900,000 invested.

The annual product of such a mill at present selling prices amounts to about $700,000, which shows a turnover of the capital employed of once in five or six years. The interest charge on so large an investment at 6 per cent would be $234,000, or about $13 per ton of pulp produced. Thus anything which would affect the profits of the sulphite industry would seriously affect a large amount of capital.

Practically no sulphite pulp is exported, as costs in Canada and Europe are considerably below our costs. Owing to the rapid building of mills in this country and abroad prices have been kept below a point affording a reasonable profit. Owing to the low European labor cost the output in this country, protected by a duty amounting to only 8½ per cent, has never afforded a fairly remunerative return on capital, for the price in this country is fixed by the European and Canadian offerings.

Owing to the technical nature of the industry, and the experimental character of the business from its inception, necessitating frequent changes in equipment, the business has been lacking in fair profits. The depreciation and upkeep of a sulphite-pulp mill is unusually

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high, owing to the use of destructive acids in the manufacture of the product.

Figures have already been submitted to you showing the great difference between European labor costs in this industry and those which are paid in this country. I desire to submit herewith (Exhibit A) the statement of the wages paid in the Scandinavian sulphite mills. This statement covers the wages paid in the mills belonging to the Scandinavian Sulphite Association, which includes practically all the Swedish and Norwegian sulphite mills. I have been informed that this association is recognized by the governments of Norway and Sweden, and not only fixes uniform wages for employees, but also fixes uniform selling prices and establishes trade customs.

I also beg to submit a statement (Exhibit B) showing the comparative wages paid in the mills of the Scandinavian Association and in a representative United States mill. This statement shows comparative wages of men in similar positions. The general average wage per hour in the Scandinavian mills amounts to $10\frac{7}{10}$ cents per hour, and in the American mill to 26.59 cents per hour. The American wages average 248 per cent higher than those paid in the Scandinavian mills. The average cost for labor in an American quick-cooked sulphite mill is about $5 per ton. The European wages, as shown by the official table of the Scandinavian mills, average 40 per cent of the American wages, or about $2 per ton, leaving a difference between the American and Scandinavian wages of $3 per ton.

The duty on foreign sulphite imported into this country is $3.32 per ton, or about equal to the difference in labor cost between that paid in Norway and Sweden and America. I understand that the wages in Germany are about the same as in the above-mentioned countries, while the wages in Finland and Russia are lower. If the low wages of operatives engaged in cutting the pulp wood were taken into account, the duty would amount to considerably less than the difference in the total labor cost. There are also other advantages which the foreigner possesses, which give him still further aid in underselling us in our own territory.

I submit a statement (Exhibit C) showing that in the year 1907 there were 110,000 tons of foreign unbleached sulphite imported into this country, while American mills were short of shipping up to their full capacity to the extent of 84,000 tons. During this period the foreign mills shipped into this market 39 per cent of the pulp sold.

During the present year the situation has been much more serious for the domestic producer, for the recent tremendous increase in production abroad has resulted in a foreign market, which has been badly congested, and has caused a frenzied effort on the part of the foreign producer to market his surplus product in this country, without much regard to cost. I understand that the foreign associations which govern the selling prices have authorized the dumping of the product of their members at a price ruling much below the price abroad, and actually in some cases below the cost of production. This leads to the suggestion that an antidumping law would tend to cause greater stability of prices and to afford more adequate protection to the American manufacturer and working man.

This serious attack upon our home business has occurred at a time when our own business was badly crippled from the effects of the general business depression. Some of the American mills ran only one-

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third of the time during the first six months of the year, and the average output of the American mills was not over 50 per cent of their normal productive capacity.

The Swedish and Scandinavian mills have advantages not possessed by the American mills. Their cheap labor, as shown above, is naturally their chief advantage. But they also have the advantage of low construction costs for their buildings and machinery. They have large and cheap water powers, and low transportation costs, owing to abundant inland waterways. Their ocean freights are also exceedingly low, as freight is often taken at practically ballast rates. Their wood is also said to be lower in price than the spruce wood largely used by the American mills.

In view, therefore, of the magnitude of this industry, and the advantages possessed by our foreign competitors, we confidently look to your committee not to penalize an industry struggling against unequal odds and fighting to maintain the American home market against the onslaughts of foreign competition, and earnestly request the retention of the present rate of duty on unbleached sulphite.

I thank you for your courtesy and regret that the illness of an American manufacturer, much better equipped than I to give information to your committee, necessitated the hurried and imperfect preparation of this statement.

(The exhibits referred to by Mr. Steele are as follows:)

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[Den Skandinaviske Celluloseforenings Norske Afdeling.]

EXHIBIT A.—*Lønninger I 4de Kvartal 1907, Sulfitfabrikerne.*

[Anm.—I nævrende Sammenstilling er Spise- og Hviletid overalt medtaget under Benævnelsen "Skift."]

	Dagløn for arbeidere med.		Akkordløn gjennemsnitlig fortgeneste pr. dag.		Frit hus eller anden naturalydelse.	Tillæg for overtid og helligdage.	Særegne forholde.
	8 timers skift.	12 timers skift.	8 timers skift.	12 timers skift.			
Vedrensere: formænd.	E^{ii} Kr. 1400.00 pr. aar. E^{iii} Maanedsløn.	A^{i} Gluggegutter, 2.50. Soldgutter, 2.20. A^{ii} Flisegut, 2.25. Kubmester, 3.25. Høvler, 3.50.		A^{i} 5.50. A^{iii} 5.20. A^{iv} 4.96½. A^{v} 5.37. A^{vi} 5.41. B 5.75. C^{i} 4.87. C^{ii} 4.21. R 4.66. E^{i} 5.01.		A^{i} Almindelig anmærkning: For overtid 50%. B Henhv., 25% og 50%. C^{i} 25%–50%. D Almindelig bemærkning: 25%, 50% og op til 100% for enkelt helligdagsarbeide, f. ex. vandarbeide, rensning af kar og kanaler, etc. E^{i} Almindelig bemærkning: Overtid 25% helligdage 50%. E^{ii} Almindelig bemærkning: 25% for de 2 første timer, 50% for al anden overtid, 100% for jul, paaske og pintse. E^{iii} For de første 2 timer efter endt ordinær overtid i de første 5 virkedage i ugen 25%, for alt andet overtidsarbeide paa hverdag og helligdag 50%, for de stor høitider, jul, paaske og pintse 100%.	A^{i} For haandværkere betales de første 10 timer med 50% siden med 100% tillæg. C^{i} Alm. anmærkn: Intet tillæg for regulært helligdagsarbeide ved driften.
Vedrensere: øvrige.		E^{ii} 3.90. E^{iii} 3.40.		A^{i} 4.50. A^{iv} 4.46 (kappere). 4.29 (huggere). A^{iii} 4.40. A^{iv} 4.45½. A^{v} 4.94. A^{vi} 4.62. B^{i} 4.35.		A^{i} 50%. B Henhv., 25% og 50%. C^{i} Henhv., 25% og 50%. D Se ovenfor E^{i} Henhv., 25% og 50%. E^{ii} Se ovenfor. E^{iii} Se ovenfor.	

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EXHIBIT A.—*Lønninger I 4de Kvartal 1907, Sulfitfabrikerne*—Continued.

	Dagløn for arbeidere med.		Akkordløn gjennemsnitlig fortgeneste pr. dag.		Frit hus eller anden naturalydelse.	Tillæg for overtid og helligdage.	Særegne forholde.
	8 timers skift.	12 timers skift.	8 timers skift.	12 timers skift.			
Vedrensere: øvrige (Continucd.)				C[I] 4.44. C[II] 4.53–3.80. D[I] 3.40. E[I] 4.55 E[III] 4.40.			
Fyrbødere	C[I] 3.28. C[II] 1ste fyrbøder 3.55. E[III] 3.90.		A[I] 5.06. A[II] 4.68. A[IV] 3 64. A[V] 4.60. A[VI] 4.56 + overtid. B 4.69. E[I] 4.75. E[II] 3.80.	A[III] 5.75. D 4.45.		A[I] For søndagsarbeide + kr. 2.00 for den der er paa 8 timers skift. C[I] 25%–50%. D Se ovenfor. E[I] 25%–50%. E[II] Se under vedrensere. E[III] Se under vedrensere.	A[II] Tjeneste hver 3die søndag. C[I] Intet tillæg for regulært helligdagsarbeide ved driften. C[II] Tildels søndagsarbeide
Underfyrbødere	A[II] 3.50. C[I] 3.12. C[II] 2den fyrbøder 3.25. E[III] 2den fyrbøder 3.60.	E[II] 3.60.	A[I] 4.12. A[IV] 3.11. A[V] 4.23. B 4.02. E[I] 3.86. E[II] 3.67.	A[I] 4.80 (Fliskjedlen). A[III] 4.66. A[VI] 4.44. D 4.00.		A[I] For søndage+kr. 2.00 for den, der er paa 8 timers skift. C[I] 25%–50%. D Se under vedrensere. E[I] 25%–50%. E[II] Se under vedrensere. E[III] Se under vedrensere.	A[II] Tjeneste hver 3die søndag. C[I] Se under fyrbødere. C[II] Se under fyrbødere.
Kultrillere	B 3.00. C[I] 2.96. E[II] 3.50. E[III] 3.60 (slaggere).	A[I] 3.75. A[II] 3.25. E[I] 3.75.	A[V] 4.23. A[VI] 3.80 + overtid.	A[III] 4.40. A[IV] 3.39.		A[II] 50%. C[I] 25%–50%. D Se under vedrensere. E[I] 25%–50%. E[II] Se under vedrensere. E[III] Se under vedrensere.	A[II] Tjeneste hver 2den søndag. C[I] Se under fyrbødere.
Kogeri: formænd	sl C[II] e koger 5.00.		A[I] 6.05. A[II] 5.13 (koger). A[IV] 5.39. A[V] 5.70. A[VI] 6.04. B 5.23. E[II] 4.88 (kogemester). E[III] 5.09 (1ste koger).	A[III] 6.53. E[I] 5.96.	A[VI] Frit hus.	A[I] For søndage + kr. 2.00. D Se under vedrensere. E[I] Henhv., 25% og 50%. E[II] Se under vedrensere. E[III] Se under vedrensere.	A[II] Tjeneste hver 2den søndag. C[II] Søndagsarbeide.

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Kogeri: øvrige	C[I] 4.80. C[II] 2den koger 4.00.		A[I] 4.12 A[II] 4.46 (gut). A[IV] 3.31. A[V] 5.00. A[VI] 3.99. B 4.20. E[II] 4.11. E[III] 4.26	A[III] 4.66 D 4.35. E[I] 4.55.		A[I] For søndage + kr. 2.00. C[I] 25%—50%. D Se under vedrensere. E[I] 25%—50%. E[II] Se under vedrensere. E[III] Se under vedrensere.	C[I] Se under fyrbødere. C[II] Se under fyrbødere. C[II] Lossere og lastere kr. 32.00 pr. uge, ingen bestemt skiftinddeling. Ca. 10 arb. perioder pr. uge. E[II] For kogeri og kemisk afdeling: 1 formand medaarsløn kr.1,500.00.
Smørere		A[I] 3.25. C[II] 3.50. E[III] 3.70.	E[I] 4.06	A[III] 4.66. A[IV] 4.30. A[V] 5.37. B 5.02. D 4.65. E[II] 4.15.		B Overtid 50%. C[I] 25% og 50%. C[II] For de 2 første timer efter ordinær arbeidstid i ugens 5 første virkedage 25%. Ellers 50% undtagen for jul, paaske og pintse, da der er 100%. D Se under vedrensere. E[I] Henhv. 25% og 50%. E[II] Se under vedrensere. E[III] Se under vedrensere.	
Vaskere		C[I] 3.00. C[II] 3.00.		A[I] 5.26 og 4.80. A[II] 4.32. A[III] 4.40. A[IV] 5.73 1ste massesskuffere (knudesilkjørere) og kr. 4.68 (2den knudesilskjørere). A[V] 4.95. A[VI] 5.08 (silegutter). B 3.76. D 3.40. E[I] 4.35. E[II] 4.25—4.40. E[III] 4.73.		C[I] 25%—50%. C[II] Se under smørere. D Se under vedrensere. E[I] Henhv. 25%—50%. E[II] Se under vedrensere. E[III] Se under vedrensere.	
Massetrillere		C[I] 3.25. E[I] 3.75.	A[V] 4.23	A[I] 5.26. A[II] 4.57. A[III] 4.66. A[VI] 5.03. B 5.05. C[II] 4.30. D 3.60. E[III] 4.73 (lempere).		C[I] 25%—50%. D Se under vedrensere. E[I] 25%—50%. E[II] Se under vedrensere. E[III] Se under vedrensere.	

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EXHIBIT A.—*Lønninger I 4'de Kvartal 1907, Sulfitfabrikerne*—Continued.

	Dagløn for arbeidere med.		Akkordløn gjennemsnitlig fortjeneste pr. dag.		Frit hus eller anden naturalydelse.	Tillæg for overtid og helligdage.	Særegne forholde.
	8 timers skift.	12 timers skift.	8 timers skift.	12 timers skift.			
Papmaskinførere.		C[i] 4.00 og 3.80 (maskinister). C[ii] 3.75.		A[i] 6.23. A[ii] 4.83. A[iii] 5.75. A[iv] 5.15. A[v] 6.66. A[vi] 6.59 og 5.03. B 5.93. D 4.55. E[i] 5.74. E[ii] 4.97. E[iii] 5.21.		C[i] 25%—50%. C[ii] Se under smørere. D Se under vedrensere. E[i] Henhv., 25% og 50%. E[ii] Se under vedrensere. E[iii] Se under vedrensere.	
Wiregutter.		A[i] 2.50. C[i] 2.50. C[ii] 3.25.		A[iii] 4.40. A[iv] 4.42. A[v] 4.05. A[vi] 3.96. E[i] 4.55.		C[i] 25%—50%. C[ii] Se under smørere. D Se under vedrensere. E[i] Henhv., 25% og 50%. E[ii] Se under vedrensere. E[iii] Se under vedrensere.	
Saxegut.		B 2.40. C[i] 2.50. C[ii] 2.75. E[iii] 3.80.	A[ii] 3.05. A[iii] 3.76.	A[i] 3.92. A[iv] 2.60. A[v] 4.05. D 2.50. E[i] 4.22. E[ii] 3.62.		B Henhv., 25% og 50%. C[i] 25%—50%. C[ii] Se under smørere. D Se under vedrensere. E[i] Henhv., 25% og 50%. E[ii] Se under vedrensere. E[iii] Se under vedrensere.	
Pressere og pakkere.			A[iii] 3.76. E[ii] 4.33 (pakkere).	A[i] 3.55 (pressere). 4.70 (pakkere). A[ii] 4.32 (pressere). A[iv] 4.80 og 4.06. A[v] 4.95. A[vi] 5.72. B 5.22. C[i] 4.12. C[ii] 3.90. D 3.60. E[i] 4.45 og 4.78. E[iii] 4.56.		B Henhv., 25% og 50%. C[i] Henhv., 25% og 50%. D Se under vedrensere. E[i] Henhv., 25% og 50%. E[ii] Se under vedrensere. E[iii] Se under vedrensere.	C[ii] Anvendes sammen med "sygutter" som regel til veining og transport (rullelastere).

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Sygutter		B 2.40. E III 1.60 (piger).	E II 2.06 (piger).	A I 3.92. A III 3.87. A IV 5.00. A V 3.60. A VI 4.74. C II 3.90. E I 3.99. E III 2.09 (piger).		B Henhv., 25% og 50%. D Se under vedrensere. E I Henhv., 25% og 50%. E II Se under vedrensere. E III Se under vedrensere.	C II Se under pressere og pakkere.
Svovlovne	C I 3.84. C II 4.00.		A I 5.54 og 5.26. A II 4.91. A IV 4.43. A V 4.97.	D 4.95.		C I 25%—50%. D Se under vedrensere. E II Se under vedrensere. E III Se under vedrensere.	A II Tjeneste hver 4de søndag. C II Søndagsarbeide.
Kisovne	E III 3.80.		A III 4.05. B 4.42. E I 4.06. E II 4.11.	A VI 5.69.		B 25%—50%. D Se under vedrensere. E I 25%—50%. E II Se under vedrensere. E III Se under vedrensere.	E II For kogeri og kemisk afdeling: I formand med aarsløn kr. 1500.00.
Mekaniker		A I 5.00, 4.30, 3.75, 3.50. A II 4.00, 4.50. A III 3.50, 4.50. A IV 4.00 (almindelige). A V 5.00 og 3.00. A VI 5.00—4.50. B 4.10. C I 140.00 pr. maaned. C II 3.50—3.75. E II 3.30—4.30. E III 3.50—4.80.		A IV 5.07 lste mekaniker og verksmester. D 3.75, 3.50, 2.00.	A VI Frit hus og ved. C I Frit hus, lys og ved. E II Endel mekanikere har omtrent frit hus.	A II 50%. A III Natarbeide i ugen 25%. Nat til sondag 50%. Sondagsarbeide 100%. A V 50%. A VI 25%, 50%, 100%. B Henhv., 25% og 50%. C I Intet tillæg. C II Som under smørere. D Se under vedrensere. E II Se under vedrensere. E III Se under vedrensere.	
Smed		A I 4.00—3.25. A II 4.20. A III 4.25. A IV 4.30. A V 5.00 og 3.00. A VI 5.00. B 4.00. C I 3.80. C II 3.75—4.00. E I 4.00. E II 4.30. E III 3.50—4.40.		D 3.50.	C I Frit hus, lys og ved.	A II 50%. A III Som for mekanikere. A IV 25%—50%. A V 50%. A VI 25%, 50%, 100%. B Henhv., 25% og 50%. C I 25%—50%. C II Som under smørere. D Se under vedrensere. E I Henhv., 25% og 50%. E II Se under vedrensere. E III Se under vedrensere.	
Blylodder		A I 4.00+3 øre pr. ton. A II 4.66. A III 5.00. A IV 4.00. A V 4.85. A VI 5.00. B 5.80.		A IV 5.17. D 6.30—5.00	A II Frit hus og ved. A VI Frit hus.	A III Som for mekanikere. A IV 25 %—50%. A V 50 %. A VI 25%, 50%, 100%. B Intet—fast løn. C I 25%—50 %. C II Som under smørere. D Se under vedrensere.	

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EXHIBIT A.—*Lønninger I 4de Kvartal 1907, Sulfitfabrikerne*—Continued.

	Dagløn for arbeidere med.		Akkordløn gjennemsnitlig fortgeneste pr. dag.		Frit hus eller anden naturalydelse.	Tillæg for overtid og helligdage.	Særegne forhold.
	8 timers skift.	12 timers skift.	8 timers skift.	12 timers skift.			
Blylodder		C^{I} 3.75. C^{II} 3.50 og 3.75. E^{I} 6.00. E^{II} 5.00. E^{III} 3.50—5.50.				E^{I} Henhv. 25% og 50%. E^{II} Se under vedrensere. E^{III} Se under vedrensre.	
Turbinhus	A^{I} 3.50.						
Tønnermænd		A^{I} 4.00—3.50. A^{II} 4.00. A^{III} 4.00 A^{IV} 4.00. A^{V} 5.00 og 3.00. A^{VI} 5.00—4.50. B 3.90. C^{I} 4.25 C^{II} 3.75. E^{II} 3.40— 85. E^{III} 3.85.		D 3.25, 2.20.		A^{II} 50%. A^{III} Som for mekanikere. A^{IV} 25%—50%. A^{V} 50%. A^{VI} 25%, 50%, 100%. B Henhv. 25% og 50%. C^{I} 25%—50%. C^{II} Se under smørere. D Se under vedrensere. E^{II} Se under vedrensere. E^{III} Se under vedrensere.	
Almindelig Tomtearbeidere.		A^{I} 3.00. A^{II} 3.00. A^{III} 3.00. A^{IV} 3.00. A^{V} 3.00. A^{VI} 3.00. B 2.90. C^{I} 3.00. C^{II} 3.00.		D 3.00—2.50. E^{I} 4.55.		A^{II} 50%. A^{III} Natarbeide 25%. Sondagsarbeide 50%. A^{IV} 25%—50%. A^{V} 50%. A^{VI} 25%, 50%, 100%. B Henhv. 25% og 50%. C^{I} 25%—50%. C^{II} Se under smørere. D Se under vedrensere. E^{I} Henhv. 25% og 50%. E^{II} Se under vedrensere. E^{III} Se under vedrensere.	C^{II} Diverse tomtearb. udføres paa akkord saa aarsfortjenesten bliver ca. 1000.00. E^{I} Arbeidere i tørtømmer.
Almindelige tomtearbeidere		E^{II} 3.15. E^{III} 3.15.					
Masselempere		C^{I} 6.06		E^{I} 4.55. E^{II} 4.80(6timers arbeide). E^{III} 3.25 (i balle-huset).		E^{I} Henhv., 25% og 50%. E^{II} Se under vedrensere.	
Stenelevatorførere		A^{I} 3.00 E^{III} 3.50.		A^{VI} 4.22 (i syretaarn). B 4.30.		A^{IV} 25%—50%. E^{II} Se under vedrensere. E^{III} Se under vedrensere.	

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Murehaandlangere		A^{iv} 3.00 A^{vi} 3.50. B 4.00 Murere 6.00. E^{ii} 3.25. E^{iii} 3.25.		D 3.00		A^{iv} 25% og 50%. A^{vi} 25%, 50%, 100%. B Henhv., 25% og 50% E^{ii} Se under vedrensere.
Bryggearbeidere		E^{i} 3.75 og 3.25 E^{ii} 3.75 (dagarbeidere). E^{iii} 3.15. 3.74 (kullaget paa bryggen).		B 4.05		B Henhv., 25% og 50%. E^{i} Henhv., 25% og 50%. E^{ii} Se under vedrensere. E^{iii} Se under vedrensere.
Pakhusmænd		A^{iv} 5.00		B 4.05.		
Keratarbeidere				B 5.60.		
Fjeldarbeidere				B 4.10.		
Dagarbeidere		E^{i} 2.25.				

CHRISTIANIA *i marts 1908.*

For Den skandinaviske Celluloseforenings norske afdeling.

FRANTZ F. MELHUUS, *Sekretær.*

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EXHIBIT B.—*Rate per hour from records obtained from Norwegian mills in comparison with hourly rates now in force at an American mill.*

	Average per hour.		Per cent American to Scandinavian.
	Scandinavian.	American.	
Acid	13⅜	27	196
Digester	14½	28⅜	200
Wood	10 3/10	23½	230
Boiler	11½	22⅝	196
Oilers	10⅛	33	324
Wet room	10½	26½	257
Drying machine (tenders and helpers)	8½	20½	296
Weighers and packers (wrappers and helpers)	9	22⅜	248
Ordinary	7 1/10	19⅜	277
Mechanics and carpenters	10 1/10	35⅛	332
Blacksmith and helper	10 3/10	29½	270
General averages	1 7/10	26.59	248

EXHIBIT C.—*Domestic production, bleached and unbleached, as shown by Lockwood's Directory.*

	Tons daily.	Tons per year.
Total production capacity of sulphite fiber in the United States	4,096	1,228,800
Consumed by manufacturers or associated companies	3,056	916,800
Balance available for open market to mills not manufacturing pulp	1,040	312,000

The 1,040 tons daily capacity available for the general market are divided as follows:

	Tons daily.	Tons per year.
Unbleached	840	252,000
Bleached	200	60,000

FOREIGN IMPORTATIONS.

Foreign sulphite was imported during the year 1907, according to report by Department of Commerce and Labor, as follows:

	Tons.
Unbleached (approximate)	110,000
Bleached (approximate)	43,000

PROPORTION OF ACTUAL DOMESTIC SALES COMPARED WITH CAPACITY.

An actual record of the sales of all domestic mills compared with their manufacturing capacity is not available, but we have actual records of 13 of the principal mills, with a daily capacity of 539 tons, or 64 per cent of the total 840 tons.

A comparison of their actual sales and capacity is as follows:

	Daily tons.	Yearly. tons.
Capacity of 13 mills	539	161,700
1907 actual sales, 13 mills	364	109,310
Sales less than capacity	175	52,390
Per cent of sales below capacity	32	.....

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Assuming that the experience of all domestic mills was no different from that of mills having 64 per cent capacity of the total, and whose records are shown above, an estimate of actual sales of all domestic mills, compared with capacity, is as follows:

	Tons daily.	Tons yearly.
Actual capacity	840	252,000
Less estimated loss 32 per cent	268.8	80,640
1907 estimated actual sales	571.2	171,360

This record indicates that foreign unbleached sulphite was imported to the extent of 110,000 tons during a period when the sales of domestic mills were short of their capacity to furnish 80,640 tons.

MARKET CONSUMPTION IN THE UNITED STATES OF FOREIGN AND DOMESTIC COMBINED.

From the above records a summary of bleached and unbleached sulphite consumed in the United States during the year 1907, by mills buying in the open market, is as follows:

	Total.	Domestic.	Per cent.	Foreign.	Per cent.
	Tons.	*Tons.*		*Tons.*	
Unbleached	281,360	171,360	61	110,000	39
Bleached	103,000	60,000	58	43,000	42
	384,360	231,360	60	153,000	40

It will be noted from the above that foreign manufacturers sold 39 per cent of all the unbleached sold in this country, and 42 per cent of all the bleached, and the percentage of foreign, as compared with the percentage of domestic pulp sold, is:

	Domestic.	Foreign.	Per cent foreign compared with domestic.
	Tons.	*Tons.*	
Unbleached	171,360	110,000	64
Bleached	60,000	43,000	72

COMPARATIVE VALUE OF FOREIGN AND DOMESTIC FIBERS.

As regards foreign bleached sulphite, it is admitted that a considerable portion of the importations are of a higher grade than has heretofore been made in this country, but that this proportion of high-grade bleached sulphite is not large, and that the large importations of unbleached fiber are not because foreign unbleached is of a greater value than the domestic unbleached will be shown by valuations of imports given in the Department of Commerce and Labor reports for the year 1907, to which we have added duty, estimated average freight to mill, and total cost delivered mill, with comparison of the average price obtained by a representative American mill, as shown by the following tabulation:

Grade.	Foreign.				Domestic.		
	Tons imported.	Total valuation.	Average value per ton c. i. f. port.	Duty.	Estimated average freight to mill.	Total cost delivered.	Average price delivered obtained by B. S. F. Co. year 1907.
Bleached	43,688	$2,111,574	$48.33	$5.00	$2.50	$55.83	$53.90
Unbleached	110,004	3,902,528	35.48	3.33	2.50	41.33	41.04

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In the foregoing tabulation the lower price of American bleached and unbleached fiber is largely accounted for by the fact that these are the average prices of all sales of fiber, including both No. 1 and No. 2 grades, and with sales of the best grades considered separately would show a price practically equal to the selling prices of the foreign product.

The CHAIRMAN. The committee will now take a recess until Monday morning at 9.30 o'clock.

Mr. HASTINGS. Mr. Chairman, do I understand that you will continue with this same schedule on Monday?

The CHAIRMAN. We will not. There are other matters to come before the committee. The gentlemen who have not been heard will have to content themselves with filing briefs to be printed in the record.

Mr. MORRIS GINTZLER. Mr. Chairman, we have been here since yesterday, and would like the indulgence of the committee for five minutes.

The CHAIRMAN. What is that?

Mr. GINTZLER. We came here yesterday prepared to be heard, and we have been here since early this morning. All we ask is your kind indulgence for five minutes to present our views.

The CHAIRMAN. Well, the members of the committee will sit informally for five minutes. I will say that the members of the committee were here from 9.30 o'clock yesterday morning until a quarter to 12, and we have been here from 9.30 o'clock this morning until midnight, and next week we will do the same thing. However, we will hear you for five minutes. Go ahead.

STATEMENT OF MR. MORRIS GINTZLER.

The CHAIRMAN. On what subject are you about to address us?

Mr. GINTZLER. On the subject of the duty on chemical pulp, bleached and unbleached.

The CHAIRMAN. On what?

Mr. GINTZLER. On the subject of wood pulp made by chemical process.

The CHAIRMAN. Proceed.

Mr. GINTZLER. I represent the importers of New York, who have been asked by the manufacturers of this country, who have no pulp mills of their own and who are dependent on the foreign supply, to place before you some particulars to induce you in the revision of this tariff to make no change in this schedule. There have been stated at considerable length the discrepancies in labor as between this country and abroad; but it appears that all the speakers have overlooked the fact that the American workman is the most efficient laborer of his kind the world over; and while it is true that American workmen will get more per day, it is also true that to turn out the same quantity of pulp it is not necessary to have as many men in this country as it is abroad. The present duty is $3.33 per ton on unbleached pulp and $5.60 per ton on bleached pulp. These duties, with the present discrimination against the foreign manufacturer to the extent of being subjected to charges from which the American manufacturer is entirely exempt, such as packing for export, the inland freight on the other side to bring the pulp to the seaboard, the ocean freight to bring the pulp to this country, and the import merchant's profits here, are all items entering into the cost, from which the American manufacturer is entirely exempt.

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I presume it is not the intention of this committee to advance the tariff on this schedule. At the same time the trade has accommodated itself to the present rate of tariff, and at the present time it brings a certain amount of revenue to the Government, which the paper manufacturers are quite ready and willing and able to stand. The committee must remember that every ton of pulp, which is brought over from the other side means just so much of our own wood saved, and there is no need of going at any great length into the subject of the importance of the preservation of our forests.

One point I wish to bring out clearly is that for the past twelve years there has been no chemical pulp mill in this country that has failed, but each and every mill has been able to keep up and to make money.

The imports do not amount to more than 10 per cent of the total production of this product, and I maintain that the American manufacturer who is dependent on the general open market is entitled to seek his supply on such a basis. I will file with my brief here letters from different manufacturers—about 100 of the leading paper manufacturers of this country—asking you to make no change in the present tariff on chemical wood pulps. These mills employ many hands at remunerative wages, and it is a question of compelling these mills to reduce wages and possibly to shut down their plants and possibly to import the finished paper. We must bear in mind that chemical pulp is raw material and not a finished product, and as such should not be subjected to any further duty. I thank you.

The brief and letters submitted by Mr. Gintzler are as follows.

In the matter of tariff revision affecting Schedule M, wood pulp, before the Committee on Ways and Means at Washington, November 21, 1908.

The present tariff on chemical pulps should not be altered for reasons given herein.

Chemical pulps, as distinguished from mechanical or ground wood pulp, which latter is not imported from Europe, constitute the principal raw material of a great many grades of paper manufactured in this country. An additional duty on such raw material adds to the burden of the manufacturing interests of this country.

Under normal conditions there are only about 18 pulp mills of the 78 mills in the United States which can supply sulphite pulp to the paper mills. The other pulp mills manufacture only for use in their own paper mills and not for sale.

Foreign pulps do not compete to a sufficient extent with the American pulps to have their importation prohibited by any high restrictive tariff.

In this brief, where the term "tons" is used, it will be understood to mean a ton of 2,000 pounds.

WAGES.

The cost of general labor in this country for producing one ton of unbleached sulphite pulp is about $4. To this must be added the cost of repair labor, $2 per ton, which brings the total cost, including repair labor, to $6 per ton.

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This information is based on actual figures from a mill making 50 tons per day of unbleached sulphite pulp. It is considered that 75 tons is the correct unit for economical production, and the cost of labor per ton for a mill making 25 or 30 tons per day is larger than that for a mill making 75 tons daily.

The individual wages paid abroad are less than those paid in this country. At the same time, however, this difference is largely counterbalanced by the greater efficiency of the American workman. In Europe more time is devoted to the careful preparation of the wood, a longer time is used in its cooking, all adding to the cost of labor, resulting in a smaller product to the amount of labor as compared to the United States. The result is that the cost of labor per ton of pulp abroad is no less than that in this country.

The actual figures for the cost of labor per ton of pulp in Europe is from $5 to $9.75, according to quality of product and prevailing wages of the countries where mills are situated.

WOOD.

The average cost of unbarked pulp wood in this country is about $8.50 per cord of 128 cubic feet, and it requires about 2 cords of unbarked or about 1.7 cords of rossed wood for a ton of sulphite pulp, thus making the average cost of wood per ton of pulp $17. Several mills in this country manufacture pulp from slabs obtained from sawmills, which still further reduce the cost. A number of mills in this country still enjoy the benefit of their own woodlands acquired many years ago, and the price of this wood is quite a factor in forming a basis of price for the domestic pulp.

In Europe the cost of wood averages $9 per cord, making the average cost of pulp wood for a ton of pulp at the pulp mill $18.

The pulp here referred to is known as "quick-cooked unbleached sulphite pulp." The cost of pulp when manufactured by the slow-cooked or "Mitscherlich" process is largely increased, owing to the necessarily longer time used in cooking and other expenses incidental thereto.

SELLING CONDITIONS.

Before the foreign pulp becomes competitive with the domestic there must be added to it sundry costs and expenses from most of which the American pulp mill is exempt. These charges for the foreign pulp mill may be figured as follows:

	Per ton.
Cost of packing for export	$1.50
Inland freight from pulp mill to seaport	1.00
Ocean freight	3.00
The import merchant's profit	2.00
Total	7.50
To which if we add the present duty of	3.33
Makes a total of	10.83

which is the protection afforded to-day to the American pulp manufacturer. This should be sufficient for the American manufacturer of pulp and enable him to market independently of the foreign article.

The selling price of domestic quick-cooked pulp to-day averages $42, freight paid to the paper mill.

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The average selling price for foreign pulp to-day ranges from $39 to $42 at the port of arrival, and to this must be added an average freight to the paper mill of $3 per ton, making a total of $42 to $45, freight paid, to the paper mill. This is for prompt deliveries, and for future deliveries higher prices are asked.

The prices ruling to-day are not normal on account of the recent business depression and the larger stocks in the hands of foreign pulp speculators.

We quote from Farmand, the leading paper trade journal in Norway, from the issue of October 24, 1908, as follows:

The market for cellulose is so bad that it must soon bring about a curtailment of production, the more so as log prices are rather advancing than otherwise, at least in this country, and although a reduced output, of course, means an enhanced cost of production, it will not be very difficult for the managers to find out which is the smaller loss: To go down in quantity or to accept the prices which are nowadays put before them by their agents.

But nothing can demonstrate the correctness of what we have frequently stated in these columns, that the growing demand for wood for so many various purposes has an irresistible tendency to raise the level of value of the raw wood.

The prices which ruled prior to October, 1907, averaged for the domestic pulp from $42 to $46, delivered at the paper mill, and for foreign pulp from $46 to $53.

Importers are to-day delivering old contracts at these figures.

Another reason for the depression of prices, in addition to the recent dullness prevailing in business, is that domestic pulp was advanced to such a figure as made it possible to bring over larger quantities of foreign pulp.

The advances in prices of domestic pulp was caused by the large demand prevailing at that time.

In October of last year orders for paper diminished considerably, so that the paper mills could only run part time, and, in fact, several of them had to shut down for shorter or longer periods; and it may be safely stated that the average consumption of pulp by the paper mills during the past year has not been more than 60 per cent of the normal consumption. The shutting down of the paper mills naturally reduced to a great extent the demand for domestic pulp, and large quantities of foreign pulp contracted during previous times, when higher prices were ruling, came into this country. In some cases these pulps could be disposed of by the importers only at a loss.

Prior to the financial depression before referred to the domestic pulp had always been sold at about 10 or 15 per cent cheaper delivered at the paper mill than the foreign pulp. In corroboration of this, we give herewith quotations of both foreign and domestic unbleached pulps, published by the two leading trade journals of the paper and pulp industries—that is, the Paper Trade Journal and The Paper Mill, both published in New York City. These quotations for some years past, taken at random, are as follows:

[From Paper Trade Journal.]

Domestic bleached:		Domestic bleached—Continued.	
May 17, 1900	2¾ -3.05	May 17, 1906	2½ -2⅞
May 18, 1901	2½ -3.00	May 23, 1907	2.60-3.05
May 22, 1902	2.35-2.50	May 21, 1908	2.60-3.05
May 21, 1903	2.40-2.50	November 15, 1900	2¾ -3.00
May 19, 1904	2.40-2¾	November 21, 1901	2½ -3.00
May 18, 1905	2¼ -2¾	November 20, 1902	2.75-3.00

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Domestic bleached—Continued.
- November 19, 1903..... 2.40–2.50
- November 17, 1904..... 2½ –3¼
- November 16, 1905..... 2½ –2⅝
- November 22, 1906..... 2½ –2⅞
- November 21, 1907..... 2.60–3.05

Domestic unbleached:
- May 17, 1900..... 2¼ –2¾
- May 18, 1901..... 2.30–2.50
- May 22, 1902..... 1¾ –2.00
- May 21, 1903..... 1.85–2.00
- May 19, 1904..... 1.85–2.10
- May 18, 1905..... 1.80–2.10
- May 17, 1906..... 1.85–2.00
- May 23, 1907..... 2.15–2.25
- May 21, 1908..... 2.05–2.20
- November 15, 1900..... 2.10–2½
- November 21, 1901..... 1.65–1.85
- November 20, 1902..... 1.95–2.15
- November 19, 1903..... 1.85–2.10
- November 17, 1904..... 1.85–2.10
- November 16, 1905..... 1.85–2.10
- November 22, 1906..... 2.00–2.10
- November 21, 1907..... 2.20–2.30

Foreign bleached:
- May 17, 1900..... 3¼ –3¾
- May 18, 1901..... 3.15–3½
- May 22, 1902..... 2.75–3.00
- May 21, 1903..... 2.75–3.20
- May 19, 1904..... 3.20–3.40
- May 18, 1905..... 3.14–3.35

Foreign bleached—Continued.
- May 17, 1906..... 3.10–3¼
- May 23, 1907..... 3.20–3.25
- May 21, 1908..... 3.05–3.25
- November 15, 1900..... 3¼ –3¾
- November 21, 1901..... 3.00–3¼
- November 20, 1902..... 2.75–3.00
- November 19, 1903..... 2.75–3.20
- November 17, 1904..... 3.35–3.45
- November 16, 1905..... 3½ –3.35
- November 22, 1906..... 3.15–3.30
- November 21, 1907..... 3.20–3.55

Foreign unbleached:
- May 17, 1900..... 2½ –2¾
- May 18, 1901..... 2.30–2.50
- May 22, 1902..... 1.95–2.15
- May 21, 1903..... 1.95–2.15
- May 19, 1904..... 2.15–2½
- May 18, 1905..... 2.20–2½
- May 17, 1906..... 2¼ –2.40
- May 23, 1907..... 2.25–2.45
- May 21, 1908..... 2.10–2.25
- November 15, 1900..... 2.30–2.50
- November 21, 1901..... 2.30–2.50
- November 20, 1902..... 1.95–2.15
- November 19, 1903..... 1.95–2.15
- November 17, 1904..... 2.20–2.30
- November 16, 1905..... 2¼ –2.40
- November 22, 1906..... 2¼ –2.40
- November 21, 1907..... 2.25–2.55

[From Paper Mill.]

Domestic bleached:
- May 19, 1900..... 3¼ –3.50
- May 18, 1901..... 2½ –2¾
- May 17, 1902..... 2¼ –2¾
- May 23, 1903..... 2¼ –2.50
- May 21, 1904..... 2¾ –3.00
- May 20, 1905..... 2.50–3¼
- May 18, 1907..... 2¼ –3¼
- May 16, 1908..... 2½ –2¾
- November 17, 1900..... 2¾ –3.00
- November 16, 1902..... 2.50–2.75
- November 21, 1903..... 2.55–2.75
- November 19, 1904..... 2.50–3¼
- November 18, 1905..... 2½ –2⅝
- November 17, 1906..... 2½ –3.00
- November 16, 1907..... 2¾ –3.00

Domestic unbleached:
- May 19, 1900..... 2¼ –2.40
- May 18, 1901..... 1.95–2.40
- May 17, 1902..... 1.85–1.90
- May 23, 1903..... 2.00–2.40
- May 21, 1904..... 1.85–2¼
- May 20, 1905..... 1.85–2.10
- May 19, 1906..... 1.85–2.00
- May 18, 1907..... 2.30–2.50
- May 16, 1908..... 2.10–2.20
- November 17, 1900..... 2.10–2.50
- November 16, 1902..... 1.95–2.40
- November 21, 1903..... 1.85–2.00
- November 19, 1904..... 1.85–2.10
- November 18, 1905..... 1.75–2.10
- November 17, 1906..... 2.00–2.10
- November 16, 1907..... 2.20–2.50

Foreign bleached:
- May 19, 1900..... 3¼ –3.75
- May 18, 1901..... 3.60–4¼
- May 17, 1902..... 2.75–3.00
- May 23, 1903..... 2.75–3½
- May 21, 1904..... 3⅜ –3⅝
- May 20, 1905..... 3¼ –3¼
- May 19, 1906..... 3¼ –3.40
- May 18, 1907..... 3¼ –3.50
- May 16, 1908..... 3.15–3.45
- November 17, 1900..... 3¼ –3¾
- November 16, 1902..... 3.60–4.25
- November 21, 1903..... 2.85–3.00
- November 19, 1904..... 3⅜ –3⅝
- November 18, 1905..... 3¼ –3.50
- November 17, 1906..... 3¼ –3.30
- November 16, 1907..... 3¼ –3.50

Foreign unbleached:
- May 19, 1900..... 2¼ –2.50
- May 18, 1901..... 2¼ –3.00
- May 17, 1902..... 1.95–2.15
- May 23, 1903..... 1.95–2¼
- May 21, 1904..... 2.00–2.30
- May 20, 1905..... 2¼ –2.40
- May 19, 1906..... 2¼ –2.40
- November 17, 1900..... 2.30–2.50
- November 16, 1902..... 2.25–2.50
- November 21, 1903..... 1.85–2¼
- November 19, 1904..... 2.15–2¼
- November 18, 1905..... 2.25–2.65
- November 17, 1906..... 1.90–2.40
- November 16, 1907..... 2¼ –3.00

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BLEACHED SULPHITE.

The present tariff provides for a duty of $5 per ton on this article.

The items of cost entering into the manufacture are, as already shown in the unbleached pulp, practically the same also on this grade.

The cost abroad of bleaching unbleached sulphite pulp is no less than in this country, chemicals being about the same. The advantage of protection to the American manufacturer on this article is even greater under existing conditions than for the unbleached pulp.

The disadvantages with which the foreign manufacturer has to contend in marketing his goods in this country are caused by the following additional expenses from which the American pulp manufacturer is exempt:

Cost of packing, per ton	$1.50
Inland freight from pulp mill to seaport	1.00
Ocean freight	3.00
Import merchant's profit, per ton	2.00
Present duty, per ton	5.00
Total	12.00

so that the American manufacturer could sell at prices at least $12.50 per ton lower than the foreign manufacturer and make just as much profit.

SELLING CONDITIONS.

To-day the ruling price of foreign bleached sulphite pulp, as verified by the Paper Trade Journal quotations, in issue of November 12, 1908, is from $60 to $65 per ton at the port of arrival, equivalent to $63 to $68 per ton at the paper mill.

For the domestic pulp the price is, delivered at the paper mill, from $51 to $52 per ton.

There is, therefore, to-day an advantage of about $12 to $16 per ton in favor of the American manufacturer.

The higher duty would not benefit the manufacturer, inasmuch as these pulps do not compete, on account of quality, as can be seen by the difference in prices ruling to-day. If the pulps were competitive, the American manufacturer could, without difficulty, secure prices more closely approaching those ruling for the foreign article.

The policy of the American pulp manufacturer is to make large productions, and anything which restricts the production is not looked upon with favor by the American manufacturer.

The European manufacturer will exercise a great deal of patience and industry in getting an article as nearly perfect as possible, regardless of the quantity produced. This, in a measure, will explain the difference in quality between the pulps manufactured here and abroad.

ADDITIONAL ADVANTAGES ENJOYED BY THE DOMESTIC MANUFACTURER.

Where coal is used for the development of steam power, the American mills have a decided advantage over those abroad, as the cost of coal abroad is very much higher than in the United States.

In addition to this, lime and sulphur are used in large quantities, and both of these are produced in this country to a sufficient extent to meet the demand. Formerly sulphur was largely imported for pulp manufacturing purposes, but since the discovery and development of sulphur mines in Louisiana very little, if any, sulphur is imported for pulp manufacturing purposes.

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We produce in this country bleached chemical pulp made from poplar wood, and in spite of the alleged discrepancies of labor here and abroad, quantities of this article are exported.

Under the present tariff a large industry of sulphite-pulp mills has been developed. During the last twelve years not a single pulp mill has gone into bankruptcy, and many of them have enlarged their plants considerably.

It must be remembered that a good many pulp mills have been built which have used up all their available wood supply, and they have to go farther and at larger expense for their wood, which increases its cost to quite an extent.

This condition also applies to the foreign pulp mills, and in recent years the cost of wood abroad has advanced considerably.

While, according to official statistics, the wood cut by pulp mills in the United States is estimated at only 2½ per cent of the total wood cut, it is largely increased as to the total spruce wood cut.

FOREST PRESERVATION.

It is essential that our forests be conserved as much as possible. Our agricultural interests are threatened by the devastation of the forests. The consumption of foreign pulp in this country means just so much timber land saved here, and it is a matter beyond question that the welfare of all the people of the United States is entitled to protection by the preservation of their forests rather than add to the profits of a few manufacturers at the expense of the entire country.

A higher tariff would affect hundreds of paper mills that have been buying their supplies abroad, and might result in the reduction or cessation of importations of pulp and in an increase of importation of the finished paper. Such a condition would mean the shutting down of many paper mills that are now giving profitable employment to thousands of men at wages better than those enjoyed in many other lines of industry.

In the interests of the many American paper mills which do not manufacture their own sulphite pulp we ask that the present duty should not be changed.

We submit with this brief a large number of letters from leading paper manufacturers of the country protesting against any action on your part which will increase the cost of their raw material or place any excessive burden on them which would interfere with the successful operation of their plants.

Respectfully submitted.

Atterbury Bros. Co., Ira L. Beebe & Co., Frederick Bertuch & Co., Castle, Gottheil & Overton, Jean Freese, Perkins Goodwin Co., M. Gottesman & Son, Rudolf Helwig, Felix Salomon & Co., E. M. Sergeant Co., Scand.-Am. Trading Co.

RUDOLF HELWIG,
LEON GOTTHEIL,
ROBT. B. ATTERBURY,
MORRIS GINTZLER (F. BERTUCH & Co.),
New York City,
Committee.

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MENASHA, WIS., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
5 Beekman Street, New York City.

GENTLEMEN: Your letter of November 14 received, and we hasten to reply in obedience to your request.

We believe fully in the spirit of protection to all home industries, giving them the benefit of every doubt in fixing tariff schedules.

We believe that the Republican platform of 1908 should be strictly adhered to in the revision of the tariff.

We are not, however, in favor of such tariff revision as would enable manufacturers of pulp or anything else to demand such prices for their products as would be unfair to buyers and consumers.

Not long ago nearly or quite all manufacturers of sulphite pulp in this country and Canada entered into a combination for the purpose of advancing the price to a basis of hemlock sulphite at 2½ cents a pound, and in addition eliminating the former discount for cash. At the same time prices were agreed upon for papers which were made of sulphite much lower proportionally than were demanded for sulphite.

Under the conditions mentioned we found it impossible for us to buy sulphite at the pool's prices and put it into paper at the pool's prices without actual loss to our mill. Not being manufacturers of sulphite we were obliged to seek other markets in which to buy to enable our remaining in business with any degree of success. We found that we could buy from eastern importers at prices that would enable us to operate at nominal profit, and we also found that we could buy pulps of great superiority of quality.

In fact, certain of the foreign pulps are not duplicated by domestic manufacturers, and the paper made from it commands a much higher price in our markets than any made in the United States or Canada.

It is our opinion that the present duty on pulp of all kinds is high enough to protect domestic manufacturers on the basis contemplated by the Republican platform of this year.

We further believe that the protection provided in the existing schedules is sufficient to encourage the building of plants to manufacture such better grades of pulp as are needed in this market, but not now manufactured here.

We believe that the available supply of pulp wood is now, and will be, ample for all pulp and paper demands for all time, and we do not advocate protection nor tariff revision because of the possible or probable denuding of our forests. We believe, however, that such restraint as will conduce to a spirit of fairness and consistency in our industrial and commercial life should be imposed upon us all.

We do not believe that the tariff upon any kind of pulp should be so increased as to encourage the manufacturers of the United States and Canada to cooperate in the fixing of prices above the reasonable limit.

Yours, truly,

JOHN STRANGE PAPER COMPANY.
JOHN STRANGE, *Secretary.*

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HOLYOKE, MASS., *November 19, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
5 Beekman Street, New York City.

GENTLEMEN: We have your letter of the 14th instant, and wish to state that we are in hearty accord with you in your efforts to prevent the increase of the duty on foreign wood pulp. We believe it would be a great burden on the paper manufacturers and on the paper consumers to have an additional duty imposed.

We are now paying a higher price for the imported pulp which we buy for our two paper mills than we would have to pay for similar domestic pulp, but the imported pulp has characteristics which we are unable to obtain in any domestic pulp which we have used heretofore or have been able to obtain after extensive research.

In our case an increase in duty would mean a corresponding increase in the market price of our products, which, of course, the consumer would be obliged to pay, and we fail to see, under these conditions, the necessity for increasing the burden upon the consumer.

We believe that the very rapid destruction of our forest areas, which is so largely helped along by the manufacture of wood pulp, should be discouraged rather than encouraged. A higher duty on wood pulp would surely stimulate the investment of capital in the wood-pulp manufacturing business in this country, meaning an increase in the destruction of our forest reserves, which would react upon the public in general in many ways. It would certainly help to increase the cost of lumber for building material by making lumbering operations recede farther and farther from the lumber markets.

The conditions in the Connecticut Valley at the present time are a strong argument against the imposition of a still higher duty on wood pulp. The destruction of the forests on the watersheds of the Connecticut River is one of the direct causes of the very severe drought which has prevailed in the Connecticut Valley for some weeks. The waters of the Connecticut River were never so low at this period of the year, and it is hard to estimate the immense loss it is to the residents of this beautiful valley, occasioned by the shutting down of our manufacturing establishments on account of low water. The Connecticut River is not the only example, as most of the rivers along the northern Atlantic coast are suffering from the same cause. It is a very grave condition which confronts the people of the Connecticut Valley at the present time, and if this condition can be traced to the destruction of our forests such destruction surely should not be encouraged by the imposition of higher duty on wood pulp, or any other tariff legislation which would encourage or aid any lines of manufacture to renewed efforts toward forest destruction. We believe this is a question which is of vital interest to not only the paper manufacturers in the East and wood-pulp importers, but to the general public.

Yours, very truly,

JAPANESE TISSUE MILLS,
WM. H. BOND, *Secretary.*

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FITCHBURG, MASS., *November 17, 1908.*

The COMMITTEE OF WOOD-PULP IMPORTERS,
New York.

GENTLEMEN: We trust you will use your utmost endeavors to prevent any increase in the duties on chemical-process pulps.

The amount of high-grade sulphite fiber manufactured in this country, and suitable for good quality papers, is so small that any advance in the duty would not only work a hardship upon such paper manufacturers, but must of necessity result in a very substantial raise in the price of paper from the grade of low-priced book to fine writings, and we believe that any increase in the duty, while not protecting any industry in this country, as almost no mills make sulphites of equal grade to the imported, would be offset by the increased price the Government—one of the largest users of such papers—would be obliged to pay.

No greater harm can befall the paper mills of this country than the increase of duty on the high-grade sulphites imported from foreign countries, and we trust you will appreciate its serious consequences.

Yours, very truly,

FITCHBURG PAPER COMPANY,
G. R. WALLACE.

DUTY ON WOOD PULP.

TRADERS' PAPER BOARD COMPANY,
Bogota, N. J., November 18, 1908.

The COMMITTEE OF WOOD PULP IMPORTERS,
5 Beekman Street, New York City.

GENTLEMEN: As consumers of sulphite pulp we are vitally interested in the question of a tariff on this material. We protest against not only an advance in the present pulp schedule, but most decidedly against any tariff on wood pulp, either mechanical or chemical pulp.

The manufacturers of paper who do not own domestic timber lands and pulp mills are suffering to-day, and most of them have their mills on part time or down completely through inability to obtain from domestic manufacturers mechanical wood pulp at any price or chemical pulp at any reasonable price.

It is evident to any sane man familiar with the paper business in this country that a duty on wood pulp does not protect labor and does not tend to preserve our forests, and the only conceivable excuse for a tariff duty is to foster a monopoly of owners of extensive woodland tracts operating pulp mills, who by unlawful competition have put the price to such a point and reduced production in such a way that the manufacturers of paper who are not in their ring, and who employ most of the labor engaged in the industry, are working to serious disadvantage, and instead of protecting the manufacturer as a whole and protecting the labor engaged in the industry the Government, through its tariff duties, are effectively backing conspirators whose aims and objects are against the interest of the larger number engaged in the trade.

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You are no doubt well aware that it is not only the user of print paper who has a valid objection to the duty on wood pulp, but it is decidedly the majority in number, and in the aggregate the majority in capital invested in the paper business, who suffer most from these duties on raw material.

It is high time, in my opinion, that the Government let raw material come into this country free.

Yours, very truly, C. W. BELL, *Receiver*.

GEO. W. WHEELWRIGHT PAPER COMPANY,
Boston, November 19, 1908.

COMMITTEE ON WAYS AND MEANS,
Washington, D. C.

DEAR SIRS: The Geo. W. Wheelwright Paper Company are manufacturers of paper with mills producing about 50 tons of paper per day of book grades. These mills are situated in Massachusetts within about 50 miles of Boston. Our location precludes the manufacture of wood pulp, as all forests are distant, and fuel is high.

We are using a considerable quantity of chemical wood fibers, both domestic and imported. The soda fiber we use the most of is all of domestic make, but the stronger fiber made by the sulphite process we use more largely of the imported, for the reason that it is of superior quality to the general product of the domestic pulp mills, and is sold at a higher price, and to a great extent is not competitive, as the domestic pulp is an inferior quality and can not be substituted for the imported, which commands a price which certainly averages a quarter of a cent a pound higher. An increase in the duties would be a hardship on us, for the reason that we must continue to buy the foreign product, as the home producers have never supplied pulp of the quality we desire, and we are certain we should be unable to advance our prices to offset increased costs.

There are comparatively few pulp mills whose product is sold to mills using but not producing pulp, and the market for domestic pulp is largely controlled by mills producing and using pulp in the manufacture of paper and selling their surplus. It is doubly the interest of such manufacturers to favor the exclusion of imported pulps by higher duties, as it benefits them both in the sale of pulp and of paper.

For the foregoing reasons we protest against any advance in the duties on pulp.

The present quotations for foreign pulp for immediate shipment are abnormally low, due to the unfavorable business conditions which have prevailed and should not be considered in any adjustment of duties for the reasons of market conditions, as explained by one of our English correspondents, who is well posted. We quote below their letter of October 31:

"With reference to sulphite supplies, would you consider the question of picking up what may be considered a bargian for delivery this year? The point is this: Owing to dullness of trade, many papermakers in this country are not able to take out their contracted supplies, consequently some paper mills in Scandinavia have stocks inconveniently large. This condition of affairs will, we think, be

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only temporary, because the price has now sunk below cost of production. A movement is on foot in Scandinavia to reduce production by 30 per cent for three or six months. All Norwegian mills have agreed to this and more than half the Sweedish mills. They are, however, waiting for more complete unanimity before putting this plan into operation. In the meantime several mills will shut down for a month or more on their own account without waiting until the pulp associations have come to a decision. It is to be expected, therefore, that during next year the supply will adjust itself to the demand, but in the meantime, for financial reasons, there are stocks which will be going cheap. If you could take 2/300 tons for this year we could probably make you a special offer.

We have dispatched to you a sample of our "G" pulp, and we have to-day sent you a further sample of our "T" pulp. You have already a sample of the HX. These three brands all run much the same and are popular in this country as being easy bleaching, suitable for printings. From one or other of these mills we could possibly supply you with cheap lots for this year. We can not quote at present until we know that you will be open, but on hearing from you we would lay an offer before you.

Respectfully, yours, ——— ———.

———

MIDDLETOWN, OHIO, *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
5 Beekman Street, New York City.

GENTLEMEN: We notice that there is considerable agitation up in reference to the revision of the tariff on pulp, and that you are filing a protest against any advance. We wish to join you in this, and state that we consider it a great injustice to the consumers of pulps to increase the tariff on foreign, that the domestic manufacturers might increase the price of their present product, which we consider too high now.

They attempted to raise the price away beyond reason a year or so ago, and had it not been for the foreign importation we would have been forced to pay at least $3 or $4 a ton more for domestic.

If anything is done, we consider that the schedule should be reduced, rather than advanced.

We hope that you may be able to place the matter before the proper authorities at Washington in such a light that they will see what an injustice would be done the consumers if any advance is made.

Yours, truly, THE PAUL A. SORG PAPER COMPANY,
M. T. HARLTEY, *Treasurer.*

———

MARCELLUS FALLS, N. Y., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York City.

GENTLEMEN: Replying to your favor of the 14th, would say that we, as paper manufacturers, consider it would be a great mistake to

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increase the tariff on such grades of chemical pulp as are being imported into this country, including the high grades of sulphite and sulphate pulp, such as is used in all superior grades of wrapping specialties, for the very reason there is very little, if any, made in this country that comes up to the requirements of this class of paper.

The manufacturers of sulphite and other grades of chemical pulp in this country are satisfied to make a grade of stock that will answer for news paper and the lower grades of wrapping paper, but do not make a quality that will answer for the better grades of paper.

Consequently the paper mills confining themselves to the better grade of wood papers, as a rule are buying imported stock, simply because the home product that is on the market will not fill the bill.

Increasing the tariff will not increase the consumption of the home product of chemical pulp, but it will increase the importation of the foreign high-grade paper, to the detriment of the mills now making these high grades at home in our own country.

For these reasons we are opposed to an increase of the tariff on imported stock, especially as our own supply of wood is now so limited.

Yours, truly,

MARCELLUS PAPER COMPANY,
Per F. J. FORD.

TONAWANDA, N. Y., *November 18, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York City.

GENTLEMEN: With reference to the hearing before the Committee on Ways and Means in the House of Representatives on November 21, we would desire to protest against any increase on the present importation duty on pulp.

We are convinced that an increase on this duty would work to the detriment of American manufacturers using pulp or sulphite, not only because the higher cost of production and relatively higher cost of labor in the country is in itself a handicap against the American manufacturer, but because the rapid depletion of our own forests, particularly of spruce, which is the best wood for the manufacture of pulp board, makes it vitally important that we be able to obtain pulp from the Canadian market.

This not only protects our own forests, but is also a protection against the flooding of our market with pulp board from Sweden and Norway.

Very truly, yours,

TONAWANDA BOARD AND PAPER COMPANY.

BOSTON, *November 17, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York, N. Y.

GENTLEMEN: Learning that there is an agitation to increase the tariff on wood pulp, we desire, as manufacturers using this kind of stock, to protest against such proposed increase.

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We are convinced that to raise the duty would benefit only a few individuals, and would be detrimental to the whole paper-making industry. More than this, it would have a very prejudicial effect upon the forests of the United States, which need the most enlightened legislation and care to save them from practical extinction.

Hoping that your committee will most seriously urge that the present schedule be diminished rather than increased, we are,

Yours, very truly,

MUNROE FELT AND PAPER COMPANY,
JAMES P. MUNROE, *Treasurer.*

CLEVELAND, OHIO, *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York, N. Y.

GENTLEMEN: As we buy considerable tonnage of foreign sulphite, we are greatly interested in the proposed revision of the tariff. It seems to us that it would be a grave mistake to advance the present duty and thereby discourage importation of wood pulp at a time when this country needs all its domestic timber, which is being rapidly exhausted. The present duty affords a reasonable protection to domestic producers, and yet permits considerable importations to supply the paper and board mills of this country. We wish to join you in expressing our protest against any advance in the pulp schedule.

Yours, respectfully,

THE OHIO BOXBOARD COMPANY,
THOS. W. ROSS, *Treasurer.*

VICKSBURG, MICH., *November 17, 1908.*

COMMITTEE OF WOOD PULP MAKERS,
New York, N. Y.

DEAR SIRS: Your letter of November 14 received and noted. Of course it goes without saying that the paper mills do not wish any advance or any change of any kind in the duty on wood pulp. The mills are, as a rule, perfectly satisfied with the present tariff on both pulp and papers, with the exception that the present tariff on importation of papers is very indefinite and allows many times high-priced papers to be imported under a low tariff.

At the meeting in Chicago last week the fine writing mills appointed a committee to represent them at the hearing in Washington, and it would seem as though a conjunction of your committee with that would be a good idea and work out to the good of all concerned.

Mr. C. A. Crocker is the chairman of this committee in question.

Yours, truly,

LEE PAPER COMPANY,
O. H. BRIGGS, *Manager.*

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HIGHLAND PARK, CONN., *November 17, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
5 Beekman Street, New York City.

GENTLEMEN: Your circular of the 14th came duly to hand. We are but small consumers of sulphite pulp, and therefore it would not make as much difference to us if the tariff was increased or decreased as though we were larger users. We may, perhaps, be able to give nearer to a disinterested opinion in the matter than as though we were larger consumers. We think, however, it would be very unwise to increase the duty on pulp, in view of the rapid disappearance of the forests in this country, also the agitation which has sprung up among the newspaper men for a lower price on their paper. While we do not have any great sympathy with them in their contention, from some of the editorials we have read, and they do not seem to know what they are talking about, only that they want a lower price on paper, still we think it would be unwise to do anything that would necessitate an increase of price in news. We should recommend, if there is to be any change at all, that it should be decreased rather than increased, in view of the facts stated above.

Very truly, yours,

CASE BROS. (INCORPORATED),
Per R. N. STANLEY, *Secretary.*

MANAYUNK, PHILADELPHIA, *November 17, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York, N. Y.

GENTLEMEN: Replying to your favor of the 14th instant, we don't think it advisable to change the tariff on pulp and paper, and certainly not to increase it, as we are very large users of imported pulp both bleached and unbleached. Our reason for using this pulp is that we were forced to buy it on account of the domestic sulphite manufacturers getting together and putting a prohibitive price on the domestic pulp.

If there is any change to be made in the tariff, we think there should be a reduction made on the bleached pulp, as it is too high, or, better still, if the Government desires to protect our own forests we don't see why there should be any duty at all on the imported pulps, as it certainly would encourage the use of them and protect our own forests and not affect the domestic sulphite manufacturers, as they have at present virtually no competition outside of the imported pulps.

Yours, truly,

McDOWELL PAPER MILLS,
C. McDOWELL.

HOLYOKE, MASS., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York, N. Y.

GENTLEMEN: We have your favor of the 14th instant with reference to the present duty on pulps and would state that we are in favor

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of a reduction in present duties, and in view of the rapidly decreasing amount of pulp wood in this country we trust that the congressional committee will report in favor of such a reduction.

Very truly, yours,

C. E. POPE PAPER COMPANY,
C. W. WHITING, *Treasurer.*

MILTON, N. H., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York.

GENTLEMEN: Regarding the tariff on mechanical and chemical wood pulp, this company is very much opposed to any increase of the duty; it would work an unnecessary hardship on consumers. We are paying now $42 for unbleached sulphite, the highest price I can remember. The duty on mechanical pulp should be taken off entirely. The price of this commodity is not regulated by duty, but entirely by the water supply and the ability of the grinders to operate. A drought creates high prices; plenty of water power, low prices. It is a low-priced product normally, and the high freight rates from Canada and elsewhere makes a sufficiently high natural duty to always give domestic pulp an advantage of from $2 to $4 per ton.

Yours, truly,

W. S. LOWE, *Treasurer.*

RICHMOND, VA., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York City.

GENTLEMEN: In answer to your letter of the 14th instant, beg to say we feel that the present duty on wood pulp is sufficient to protect the industry of this country, and at the same time the prices obtained for the domestic product are profitable to the manufacturers.

We are not large consumers of foreign sulphite, but we use this product in the manufacture of our paper to some extent, and if the duty on same is advanced, we will consequently have to pay a higher price, which will affect materially the profit on our paper in which this sulphite is used. We are therefore opposed to any advance in the duty on wood pulp.

Yours, very truly,

THE ALBERMARLE PAPER MANUFACTURING COMPANY.
H. W. ELLERSON, *President.*

MIDDLETOWN, OHIO, *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York City.

GENTLEMEN: We are in receipt of your favor of the 14th, requesting us to give you a letter in regard to increasing duties on wood pulp.

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In reply would say that this article does not interest us very much, as our usage is very small. However, we think it would be a great mistake for Congress to increase the duty on wood pulp, especially at this time, when there is so much agitation going on in Congress and elsewhere in regard to protecting our forests.

To increase the duty on wood pulp would certainly have a tendency to create more demand for wood in this country, and there is no doubt but what we are all interested in preserving our forests as much as possible; hence the more pulp that comes into this country the more protection we give our forests.

We think, however, that you are unduly alarmed, as we do not think there is any Congressman or Senator that would be so unwise as to raise the duty on wood pulp at the present time, especially after the recent recommendations of President Roosevelt in regard to putting news paper and pulp on the free list.

Very respectfully, yours,

THE WARDLOW-THOMAS PAPER COMPANY.

BARDEEN PAPER COMPANY,
Otsego, Mich., November 16, 1908.

COMMITTEE OF WOOD PULP IMPORTERS,
New York.

DEAR SIRS: We have yours of the 14th. As we are manufacturers of paper and not of wood pulp, we naturally want to buy our pulp as cheaply as we can, and are not in favor of increased duties.

While we believe in protection to home industries, we also believe in competition.

Yours, truly,

G. E. BARDEEN, *President.*
K. BARDEEN.

SEYMOUR, CONN., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York.

GENTLEMEN: Replying to yours of 14th, we are not large users of wood pulp, but any increase of duty on pulp will affect us in proportion to larger users. We are opposed to any increase of tariff on wood pulp.

Yours, truly,

S. Y. BEACH PAPER CO.

NOVEMBER 16, 1908.

COMMITTEE OF WOOD PULP IMPORTERS,
New York City.

GENTLEMEN: We have your circular letter 14th, and will say that it is our earnest desire that the duties on wood pulp remain at the present figures. It strikes us they are quite equitable, and we sincerely trust your committee can so convince the proper authorities at Washington.

Yours, truly,

THE BECKETT PAPER CO.,
F. BECKETT, *Treasurer.*

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MORRIS, ILL., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
5 Beekman Street, New York, N. Y.

GENTLEMEN: Answering your favor of the 14th instant, we beg to advise that it is not our wish or desire that there should be any increase or advance on the duty in the pulp schedule.

Any change in the present tariff on wood pulp in the line of an increase would simply add an additional burden to the consumer and the manufacturer, and we trust that no such action will be taken when the tariff is revised.

Yours, very truly,

PRAIRIE BOX BOARD CO.,
B. F. MCKEAGE, JR., *Secretary-Treasurer.*

FORESTPORT, N. Y., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York, N. Y.

DEAR SIRS: In reply to yours we will say we have carefully considered the matter, and have decided that, in our opinion, it is for the best interest of the general public that the duty on wood pulp and paper be left where it now is.

Respectfully, yours, A. R. PENNINGTON & CO.

PARSONS PAPER COMPANY,
Holyoke, Mass., November 16, 1908.

COMMITTEE OF WOOD PULP IMPORTERS,
5 Beekman Street, New York City.

GENTLEMEN: In reply to your letter of the 14th instant, in regard to the duty on wood pulp, would say that we are decidedly opposed to any advance in duties upon this material. We do not see that there is any need for such an advance, and, as stated, we think it would be much better that none should be made.

Yours, truly,

EDWARD P. BAGG, *Treasurer.*

PHOENIX, N. Y., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York, N. Y.

GENTLEMEN: We are not in favor of a revision of the tariff on wood pulp. As the matter now stands we believe the present duty affords sufficient protection to American manufacturers, allowing them to compete with foreign pulps. To increase the tariff would increase the cost of paper.

A reduction would unsettle values, demoralize business, and be detrimental to the pulp and paper industries of this country.

Yours, respectfully,

OSWEGO RIVER PAPER MILLS.

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GREEN BAY, WIS., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
Room 721, 5 Beekman Street, New York City.

GENTLEMEN: Acknowledging the receipt of your communication of 14th, to be perfectly frank with you, we believe it to be to the best interest of the industry, if not ourselves individually, to stand pat on the tariff question so far as it relates to wood pulp.

Yours, very truly,

NORTHERN PAPER MILLS,
IVER J. TERP, *Secretary.*

NEW HAVEN, CONN., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
5 Beekman Street, New York.

GENTLEMEN: Yours of the 14th received, and beg to advise that we can not conceive of any sane argument in favor of an advance in the pulp schedule. While it is against our interest as consumers of pulp, in a broad sense we believe it would be antagonistic to business welfare.

Very truly, yours,

THE NEW HAVEN PULP AND BOARD CO.,
WM. R. SHAFFER, *Secretary.*

BOSTON, *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
5 Beekman Street, New York.

GENTLEMEN: In reply to yours of 14th instant I believe that any change of the duty on wood pulp, especially an advance, would be an injury to the paper trade of this country and should not be undertaken. The reasons are too obvious to need repetition to anyone conversant with trade conditions.

Very truly, yours,

NATIONAL FIBRE BOARD CO.,
By STEPHEN MOORE, *Treasurer.*

LEE, MASS., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York City.

GENTLEMEN: Replying to your favor of the 14th, in which you ask us to express an opinion as to whether we are in favor of an increase in the tariff duty on imported pulp, we beg to state that we are not in favor of such an increase, as we believe it would work an injury to the paper manufacturer, as well as the consumer of paper, for certainly if you increase the duty on pulp it will mean an increased cost to the manufacturer, which he will have to add

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to the cost going to the trade, or, in other words, he would have to get more money for his paper if the pulp costs very much more. While we are not very large users of pulp, we can see where it would work to a great disadvantage in some grades of papers.

Yours, truly,

MOUNTAIN MILL PAPER CO.,
EDWARD P. STEVENSON, *Treasurer*

MONROE, MICH., *November 16, 1908.*

The COMMITTEE OF WOOD PULP IMPORTERS,
New York, N. Y.

GENTLEMEN: We are in receipt of your letter of the 14th. While we do not at present use any sulphite in the manufacturing of our product, yet we are interested in all lines of the industry, and we believe it would be a mistake to do any tinkering with the tariff on wood pulp or sulphite, as it simply tends to demoralize business until the thing is settled.

We certainly hope you will make your influence felt on Congress, as we think the tariff is all right as it is and should not be changed.

Yours, very truly,

MONROE BINDER BOARD CO.,
L. W. NEWCOMER, *President.*

EAST DOWNINGTON, PA., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
5 Beekman street, New York, N. Y.

GENTLEMEN: We wish to enter our protest against any increase of duty on wood pulp.

Yours, truly,

FRANK P. MILLER PAPER CO.
FRANK PARKE.

MEGARGEE PAPER MILLS,
Philadelphia, November 16, 1908.

COMMITTEE OF WOOD PULP IMPORTERS,
Room 721, 5 Beekman Street, New York, N. Y.

GENTLEMEN: Replying to your favor of the 14th instant on the duty on wood pulp, we are very much surprised to hear that there is any agitation for an increase of the duty on pulp; we supposed the entire agitation was the other way. So far as we have looked into the matter we think the present duty, if worded more specifically, is about right, as it covers, to the best of our knowledge, the difference in cost of labor between this country and foreign labor.

Yours, very truly,

GEO. M. MEGARGEE, *Secretary.*

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CHILLICOTHE, OHIO, *November 17, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
5 Beekman Street, New York, N. Y.

GENTLEMEN: Replying to your letter of the 14th, it is our firm belief that the interests of the paper trade as a whole, as well as our own interests, will be best served by leaving the duty as it now stands on pulp.

Yours, very truly,

THE MEAD PULP AND PAPER COMPANY,
By GEO. H. MEAD, *General Manager.*

MARION, IND., *November 17, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York, N. Y.

GENTLEMEN: We have your circular letter of the 14th instant in regard to the agitation which is now on regarding the advance in tariff on wood pulps into this country. We certainly would not be in favor of any advance in tariff on wood pulps, nor would we like to ask for any decrease, as we know the situation of the pulp mills. We believe that we would be better off without any change whatever, as with the present duty on wood pulp the pulp mills can make a nice profit on their pulp, and we certainly do not want the duty on pulp reduced so as to compel our pulp mills here to close their plants, nor do we want the duty on pulp so it will prohibit the importation of the same.

We are using considerable foreign pulp as well as American, and we believe that the present duties on pulps are adequate at the present time.

Yours, very truly,

THE MARION PAPER CO.,
H. A. GABLE, *Treasurer.*

TORONTO, *November 16, 1908.*

The COMMITTEE OF WOOD PULP IMPORTERS,
New York, N. Y.

DEAR SIR: Yours of the 14th received. I am manufacturing tissue paper at Dansville, N. Y., and would regret if the import duty on sulphite would advance, as it would so much increase the cost of my raw material, without any possibility of getting a higher price for my finished product. I trust you may succeed with the authorities at Washington in preventing any further increase in the duty on pulp.

Yours, truly,

J. H. MCNAIRN.

LAWRENCE, KANS., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York City.

GENTLEMEN: We are in receipt of your circular letter of the 14th regarding the agitation which has recently swept over the country, and regarding the revision of the tariff. We trust that there may be

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no movement toward an increased duty on pulp. Certainly it would be a disadvantage to us and to all consumers in this part of the country to have the tariff increased on pulp.

Respectfully,

LAWRENCE PAPER MFG. CO.,
PAUL A. DINSMOOR,
Assistant Manager.

YORK, PA., *November, 16, 1908.*

WOOD PULP IMPORTERS' ASSOCIATION,
New York City.

GENTLEMEN: We do not use any wood pulp and we really do wish to do all in our power to oppose any advance on raw material to protect the interests justly of the paper manufacturers. Anything further we can do in this matter will be cheerfully done.

Respectfully, yours,

LAFEAN PAPER COMPANY.

WATERTOWN, N. Y.,
November 16, 1908.

COMMITTEE OF WOOD PULP IMPORTERS,
New York.

GENTLEMEN: In response to your circular dated November 14, we have no hesitation in saying that we are not in favor of advancing the duties on wood pulps, and, more than that, we should be in favor of taking all duty off ground wood provided an agreement could be made with the Canadian government that no export duty be put upon their pulp wood. We are, however, in favor of keeping the present duties on sulphite pulps.

Yours, truly,

KNOWLTON BROTHERS.

KALAMAZOO, MICH., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York City.

GENTLEMEN: Replying to your favor of the 14th, we can hardly believe that Congress will think of increasing the duty on pulp, as popular sentiment seems to lean very strongly toward a reduction of the duty. There is no question but that it would be a tremendous disadvantage to the manufacturers if the tariff were raised, as the domestic manufacturers would immediately fall in line and increase their prices accordingly. Of the two, we should much sooner have the tariff lowered a little, but our judgment would be that the present schedule was just about right for the protection of the pulp manufacturers and the paper manufacturer as well.

Yours, truly,

KALAMAZOO PAPER COMPANY.

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SENECA FALLS, N. Y., *November 16, 1908.*

MESSRS. COM., ETC.

GENTLEMEN: I object to any change in present tariff on wood pulp.

Yours, truly,

E. S. INGERSOLL.

CASTLETON, N. Y., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York.

GENTLEMEN: We have yours of the 14th in reference to duty on wood pulp, and would state that we do not buy wood pulp, therefore have no interest in the matter beyond an indirect one. It is our opinion that the duty is high enough to protect the manufacturers in the United States. On account of low-water conditions, we understand pulp is very high just at present. Probably your demands of importations when under normal conditions would be shut off and probably at a loss to importers. However, these conditions are not likely to prevail for long; therefore think our domestic manufacturers can stand it.

Yours, truly,

INGALLS & CO.,
H. H. G. INGALLS, *Secretary.*

PHILADELPHIA, *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
5 Beekman Street, New York City.

GENTLEMEN: Yours of the 14th received. Our mills are making board from old papers, so that while we join you in your protest against higher tariff, we can not do so as users of pulp.

Very truly, yours,

ELLSWORTH H. HULTZ, Jr.

NORWICH, CONN., *November 17, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS.

GENTLEMEN: Yours of the 14th received, and we are satisfied with the tariff upon wood pulp as it is at present and do not think it necessary for any advance to be made, as the manufacturers have to pay as much as it is possible for them to do and live and carry on their business of making paper for the market, competing with other foreign papers.

Yours, truly,

THE A. H. HUBBARD CO.,
CHARLES L. HUBBARD, *President.*

POTSDAM, N. Y., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
Room 721, Beekman Street, New York City.

GENTLEMEN: We have your circular of the 14th, and note contents. We are opposed to any change in the tariff on wood pulp at

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this time because we are satisfied with the situation as it now exists. We are manufacturers of nothing but ground wood, and therefore an advance of the duty would not be likely to affect us adversely. At the same time it is our opinion that it is better to leave conditions as they are, as we think that the interests of the paper manufacturers and the paper consumers would best be served by preserving stability in the tariff.

The protection afforded by the present tariff is a reasonable and proper one and is the result of years of experience. We should not view with favor any reduction, nor do we think that it would be wise to advance the duty, taking into consideration all the conditions which have to do with the operation of the various branches of paper manufacture.

Yours, respectfully,

HANNAWA FALLS WATER POWER COMPANY,
Per E. A. MERRITT, Jr., *Receiver.*

PHILADELPHIA, *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
Room 721, 5 Beekman Street, New York City.

DEAR SIRS: We are in receipt of your letter of November 4, requesting an expression of opinion upon the subject of an advance of the duties on wood pulp.

We are users of wood pulp, and in considerable quantity, in our manufacture. We beg to state that the present price of paper is so low and the margin of profit so small that if there is an increase in the duty on wood pulp it can not possibly be borne by our branch of the manufacture and will have to be added to the price of the paper. There is no doubt, therefore, that if the duty is advanced the price of our product must advance accordingly, and as it enters into our paper in considerable percentage the advance of our price will have to be at least proportionate.

Truly, yours,

THE GLEN MILLS PAPER COMPANY,
Per THOS. L. SHAW.

APPLETON, WIS., *November 16, 1908.*

The COMMITTEE OF WOOD PULP IMPORTERS,
New York.

GENTLEMEN: Replying to your favor of the 14th instant, we are of the opinion that the present tariff on imported sulphite is all that is necessary to afford proper protection to domestic manufacturers. Strictly speaking, and from a selfish standpoint, it probably would be more to our interest if the duty might be removed; yet we are believers in the principle of protection, and while sulphite to us is a raw material it is a finished product to others engaged in its manufacture. Certainly we believe that the duty should not be increased.

Yours, truly,

FOX RIVER PAPER COMPANY.

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ROCHESTER, N. Y., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
5 Beekman Street, New York City.

GENTLEMEN: Replying to your circular letter of the 14th instant beg to state we are against any change in the tariff on pulp and paper.

Yours, very truly,

FLOWER CITY TISSUE MILLS COMPANY,
By F. M. NEPHEW.

BENNINGTON, VT., *November 17, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
Room 721, 5 Beekman Street, New York.

GENTLEMEN: We are duly in receipt of yours of the 14th instant. In reply will say that we see no good reason why the present duty on pulps should be increased. The present price of tissue paper is too low as compared with the present price of sulphite and ground wood, and if the duty on pulps was increased the prices of paper would have to be increased accordingly.

We are opposed to any increase of duty on pulps.

Very truly, yours,

FILLMORE & SLADE,
By H. D. FILLMORE.

FALLSBURGH PAPER MILLS,
Fallsburg, N. Y., November 16, 1908.

AMERICAN PAPER AND PULP ASSOCIATION.

GENTLEMEN: Yours received. We use both foreign and domestic sulphite and ground wood, and am in favor of having the tariff remain as it is on them.

Most truly, EDW. Y. LE FEVRE.

VINCENNES, IND., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York City, N. Y.

GENTLEMEN: Your "circular letter" relating to tariff on "wood pulp" received. In reply beg to say we do not believe the duty on wood or wood pulp will be raised, as the tendency and agitation is just the opposite.

We use considerable "print" in lining strawboards, but we are not advocating the lowering of the tariff as we are not "free traders," and we do not believe the tariff rate will be increased, as your circular letter suggests. We are,

Yours, respectfully, EMPIRE PAPER COMPANY.
F. W. QUANTZ, *Manager.*

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SUNAPEE, N. H., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS.

GENTLEMEN: Replying to your favor of the 14th, we hardly feel that we can support any movement for the sulphite manufacturers to increase the duty on foreign pulp. Our opinion is that with the present duty the domestic sulphite manufacturers ought to be able to compete with the foreign manufacturers, and, even if they do have to undersell slightly the foreign manufacturers, that there should still be a good margin of profit to them.

Our idea of the situation is that the domestic manufacturers thought there was no end to the price they could charge and went beyond the limits of good judgment in their prices, so letting in the foreign pulps.

Very truly, yours,

EMERSON PAPER COMPANY,
W. A. WHITNEY.

P. S.—I am, however, in favor of retaining the present tariff.

PHILADELPHIA, *November 17, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
5 Beekman Street, New York.

DEAR SIRS: Referring to your letter of the 14th, we have given the matter of the present duty on wood pulp careful consideration, and from our standpoint we do not see how our interests on this side advance by either raising or lowering the present rates of duty.

We think they are very fair as they now stand.

Very truly, yours,

DILL & COLLINS CO.,
GRELLET COLLINS, *President.*

NEW YORK, *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
5 Beekman Street, New York.

GENTLEMEN: Acknowledging receipt of your circular letter with regard to the tariff on wood pulp, we think it would be unadvisable to make any change in the present rate of duty on the same.

Very truly, yours,

DIAMOND MILLS PAPER COMPANY,
C. G. VAN GILDER, *Secretary.*

PHOENIX, N. Y., *November 17, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
5 Beekman Street, New York.

GENTLEMEN: In reply to your favor of the 14th we regret to say that it will not be convenient for us to attend the proposed meeting.

Regarding the tariff agitation and any intended advance on pulps

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coming into this country, we can only say that in self-protection we can take but one position—we are unalterably opposed to any advance in the present schedule. It seems to us that when it is known that the supply in this country is short at best, and under adverse conditions such as have prevailed recently the pulp mills have not been able to nearly meet the demand, any person or committee who tried to advance the rates of import would only do so to the great detriment of the paper mills who purchase their pulp. We shall be glad to see their efforts sidetracked.

Very truly, yours,

CRESCENT PAPER AND MACHINE COMPANY.

MARSEILLES, ILL., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York City.

GENTLEMEN: Regarding your favor of the 14th instant, we believe it would be inadvisable to make any change in the tariff on sulphite or pulp, for the reason that it would upset present conditions and increase the cost of all grades of paper and board using this raw material, and we trust that your committee will be successful in preventing any change in the present situation.

Yours, very truly,

CRESCENT PAPER COMPANY,
R. F. KNOTT, *President.*

WEST HENNIKER, N. H., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York, N. Y.

GENTLEMEN: Replying to yours of the 14th, we had no idea that there was any prospect of increasing the present duty on pulps. All the agitation we have heard of was in favor of reducing same.

It is our opinion that it would be advisable to maintain the rates about as they are at present.

Yours, truly,

CONTOOCOOK VALLEY PAPER COMPANY,
H. A. EMERSON, *Treasurer.*

HUNTINGTON, MASS., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS.

GENTLEMEN: Your circular letter of the 14th received. As we are one of the divisions of the American Writing Paper Company, we have referred your letter to our president, Mr. W. N. Caldwell, Holyoke, Mass. You have the sympathy of this division in your efforts not to have the duty on pulps increased.

The compliments of the writer to each gentleman represented on the committee.

Yours, truly,

CHESTER PAPER COMPANY DIVISION,
E. C. ROGERS, *Manager.*

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LITITZ, PA., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York, N. Y.

GENTLEMEN: We have yours of the 14th instant relative to the possibility of an increase in the duty on pulps, and we wish most emphatically to go on record as being most strenuously opposed to any such legislation.

Yours, very truly,

THE CONSUMERS BOXBOARD AND PAPER COMPANY,
H. J. PIERSON, *General Manager.*

SOUTH HADLEY FALLS, MASS., *November 17, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York City.

GENTLEMEN: In answer to your circular letter of the 14th instant, beg to state that you are right in your supposition that we are opposed to any advance in duty on foreign pulp. We might also add that we have the same opinion as the Hampshire Paper Company upon this matter.

Yours, truly,

CAREW MANUFACTURING COMPANY,
W. D. JUDD, *President.*

KALAMAZOO, MICH., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York.

GENTLEMEN: Yours of the 14th at hand, and we certainly should not like to see the duty on wood pulp raised, and we remain,

Yours, very truly,

BRYANT PAPER COMPANY.

HOUSATONIC, MASS., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York.

GENTLEMEN: Replying to your favor of November 14, we would say that we are opposed to any increase in the duty on wood pulp. On the other hand, we do not think the duty ought to be reduced. Domestic manufacturers are entitled to protection on their product the same as we ask for ours.

Yours, truly,

B. D. RISING PAPER COMPANY.

ROCKFORD, ILL., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
5 Beekman Street, New York City.

GENTLEMEN: It has come to our notice that there will be an effort made on November 21 to start a movement raising the duty on wood

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pulp, which, in our opinion, would benefit nobody but a few wood-pulp manufacturers and work a hardship on the consumer of all grades of pulp, which is now almost out of the reach of the manufacturers of the cheaper grades of paper. We, as users of the several grades of pulp, respectfully appeal to you to use every means in your power to prevent this advance.

Thanking you for any efforts you may take, we remain,

Yours, very truly,

ROCKFORD PAPER BOX BOARD COMPANY,
R. WANTZ, *Manager*.

PITTSTON, PA., *November 16, 1908*.

GENTS: I am very much opposed to any advance in the present tariff on wood pulp of any kind.

Yours, respectfully, G. B. ROMMEL.

SCOTCH PLAINS, N. J., *November 17, 1908*.

GENTLEMEN: We are not in favor of adding to the cost of the pulp we are using by having the tariff increased.

Yours, truly,

SEELEY PAPER MILLS COMPANY.

KALAMAZOO, MICH., *November 16, 1908*.

COMMITTEE OF WOOD PULP IMPORTERS,
New York, N. Y.

GENTLEMEN: We have your letter of the 14th in regard to the tariff on imported wood and sulphite, etc., and in answer would say that we do not think the tariff had ought to be interfered with in any way, and that means that we consider it just about right as it is.

Yours, very truly,

STANDARD PAPER COMPANY,
J. H. WHITNEY, *Manager*.

RICHMOND, VA., *November 16, 1908*.

COMMITTEE OF WOOD PULP IMPORTERS,
New York.

DEAR SIRS: Referring to your favor of November 14 in reference to the duty on wood pulp, will state that we think that it would be unwise for Congress to increase the duty on this material, as we ourselves do considerable export business and presume that other paper manufacturers do the same thing.

If the duty were increased on wood pulp of any kind this would naturally throw us out of line with the prices of our foreign competitors in Germany and Sweden.

We hope, therefore, that there will be no change in these duties.

Yours, truly,

STANDARD PAPER MANUFACTURING COMPANY,
R. S. CRUMP, *Secretary and Treasurer*.

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FULTON, N. Y., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York City.

GENTLEMEN: We wish to authorize you in our behalf to make just as strong a protest as you possibly can in the hearing before the Ways and Means Committee at Washington against any advance in the tariff rates on sulphite or ground wood.

There can be no question but that these articles are now sufficiently protected, and if there is any change in the tariff it should be downward rather than upward.

We believe it would be a most serious mistake if any advance in the present tariff rates on wood pulp was made.

Yours, very truly,

THE VICTORIA PAPER MILLS COMPANY,
By E. R. REDHEAD, *President.*

SKANEATELES, N. Y., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York City.

GENTLEMEN: While we are not large consumers of pulps, we certainly do not want to see any disturbance in the tariff, as that would affect our business in proportion.

We trust you will use your best endeavors to see that no disturbance occurs.

Yours, truly, CHARLES G. WEEKS COMPANY.

APPLETON, WIS., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York, N. Y.

GENTLEMEN: Replying to your letter of the 14th, we are not prepared to give you such a letter as you ask for, although upon further investigation it might prove to our interest to give it.

As we look at it, the whole paper industry must be considered as a whole, and if it develops that it is to the advantage of the trade generally to have a higher duty on sulphite pulp we are willing that it should be put on. On the other hand, if it develops that a lower duty would be of more benefit, then we are ready to acquiesce in that.

With the information at hand now, however, we can not express an opinion either way.

Yours, respectfully,

WISCONSIN TISSUE PAPER COMPANY.

WELLS RIVER, VT., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
New York.

GENTLEMEN: Replying to yours of the 14th, we would state that we do not use any sulphite pulp, our raw material being burlap, etc.

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We realize, however, that higher duties on sulphite would be a serious handicap to the majority of tissue manufacturers, as the imported article is really necessary to them. We remain,

Yours, very truly,

ADAMS PAPER COMPANY,
H. CRABTREE, *Manager.*

BELLOWS FALLS, VT., *November 16, 1908.*

COMMITTEE OF WOOD PULP IMPORTERS,
Room 721, 5 Beekman Street, New York.

GENTLEMEN: We are in receipt of your favor 14th, and would state that, in our judgment, we believe the duty on sulphite should remain as it is.

Yours, truly,

JOHN ROBERTSON & SON,
C. W. BLACK.

BOSTON, *November 20, 1908.*

The G. W. WHEELWRIGHT PAPER COMPANY.

GENTLEMEN: We understand that you propose to be represented in Washington by way of protest against any increase in the tariff on chemical wood pulp, which is taxed under "Schedule M" as follows: Unbleached, one-sixth of 1 cent per pound, dry weight; bleached, one-fourth of 1 cent per pound, dry weight.

We wish to make a similar protest.

We manufacture in Maine rising 45,000 tons of chemical wood pulp by the soda process, so-called, more than one-half of which we sell to manufacturers of paper, the balance being used in our own paper mills. We think the protection afforded our product is ample under existing law.

We buy about 14,000 tons of chemical wood pulp, mainly unbleached, made by the sulphite process, for use in our paper mills. Of this amount more than one-half is of foreign origin, five-eighths of our foreign purchases being Canadian. The cost of the foreign pulp to us, delivered at our mills, is about $4 per ton more than the cost of domestic pulp, and the specific duty amounts to more than 8 per cent ad valorem.

The above figures relate to the years 1907 and 1908. The large proportion of foreign pulp used in these years is mainly due to the fact that in the last part of 1906 and the early part of the year 1907 we found difficulty in obtaining domestic sulphite pulp at reasonable prices.

It would seem that sufficient protection is at present afforded to American manufactures on this item, and that an increase in the rate of duty levied might result in an unnecessary addition to the cost and to the price of paper in this country.

We own three mills, situated in Maine, two paper and one soda pulp mill. Our product of book and surface-coated papers is about 45,000 tons per annum

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You are authorized to make the above representations to the Committee on Ways and Means in our behalf.

Yours, very truly,

S. D. WARREN & Co.

P. S.—We wish to add that no individual or association is authorized to represent us in respect to the tariff on printing paper. We should not object to a revision of this schedule, provided, in connection with it, are fairly considered the present rates of duty on articles entering the cost of manufacture, such as coal, clay, chemicals, and structural materials.

S. D. WARREN & Co.

The following paper was submitted to the committee:

WASHINGTON, D. C., *November 21, 1908.*

The COMMITTEE ON WAYS AND MEANS,
Washington, D. C.

GENTLEMEN: I represent Finch, Pruyn & Co. (Incorporated), a domestic corporation of New York State engaged in the manufacture of paper and lumber at Glens Falls, N. Y. The production in paper, which is all news print, is approximately 18,000 tons per annum. It saws into lumber from 15,000,000 to 20,000,000 feet per annum. The company employs approximately 500 men in its manufacturing departments and in its woodland operations. The city of Glens Falls has a population of about 20,000, and its staple industry is paper-making, there being a mill of the International Paper Company located there. I am manager of the woodland department of the Finch, Pruyn & Co., and, because of the fact that the corporation is, next to the International Paper Company, the largest owner of New York State woodland, and is annually cutting a supply of wood from these lands, I am able to supply the committee with accurate figures on the cost of production of pulp wood in New York State, and perhaps, in addition, to provide an illustration of what the effect of the tariff may be upon woodlands in our section.

Our company owns 160,000 acres of Adirondack forest land. The experts say that the annual growth of spruce and hemlock upon these lands is something like 60 feet to the acre. If we exclude 10,000 acres for burns and waste land, it leaves 150,000 acres, and, assuming that the figures on annual yield given by the experts is correct, our forest would produce something like 15,000 cords of wood per year. The apacity of our present ground-wood mill is about 18,000 tons per year. Each cord of rough pulp wood produces 1,800 pounds of mechanically ground wood, so that our present use of pulp wood for ground-wood purposes is approximately 20,000 cords per year. Because of the fact that our woodlands would not supply sufficient wood for a sulphite mill to supply our sulphite, we have in the past purchased our sulphite in the open market.

The difference between our consumption of pulp wood and the yield from our own lands we purchase in the open market, mainly from Canada. In the year 1907 we purchased 691 cords of rough, 8,028 of peeled, and 1,341 cords of rossed Canadian pulp wood.

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In the same season we cut from our own lands in New York State 31,397 cords of pulp wood and logs, the total cost of which, for removal from the stump to the nearest water for floating and driving to our mill, was $141,115.60. To drive this wood to our mill we expended $28,001.94, and there was chargeable against it for sundries, office salaries, etc., $8,708.25, making the total cost of getting this wood from the stump to our mill $177,824.79, or $5.66 plus per cord. The stumpage value of this wood it is somewhat difficult to fix, as the rapid increase in the value of stumpage of Adirondack land for various purposes is well understood. However, the generally accepted value of stumpage for pulp wood purposes is from $2 to $2.50 per cord and, assuming this stumpage to have an average value of $2.25 per cord, we get a total cost per cord at our mill of $7.91 for the wood delivered in 13-foot logs. In making comparisons with the cost of Canadian wood, it should be borne in mind that the Canadian wood is cut into 4-foot lengths, while the New York State wood, from which I have given figures, comes to the mill in the log.

The Canadian wood purchased by this company, as stated above, is bought in the open market at points on the Grand Trunk Railway east of Quebec at $7 per cord for hand-peeled 4-foot wood, and the rough wood was bought in the same section at $5.50 to $6 per cord and the rossed was bought delivered at Glens Falls at $11 per cord. The estimated cost of delivering 4-foot rough pulp wood at Montmagny and St. Catherine, Quebec, by the sea-coast lumber company, one of the venders of the wood above referred to, was $2.90 per cord for Montmagny and $3.30 per cord for St. Catherine. These figures were made up of the items of $2 per cord for the labor of laying the wood at these points, plus 50 cents per cord in the case of Montmagny and $1 per cord in the case of St. Catherine for driving, booming, and sorting and 40 cents per cord in each case for stumpage.

We are supplied with figures upon the cost of delivering pulp wood to us at the mouth of the Jacques Cartier River, about 20 miles west of Quebec on the St. Lawrence. The items are $2 per cord for labor from the stump to the driving water; driving, loss of measurement, rossing, and loading, $1; total cost of wood per cord, $3. No account of stumpage value is included in the above figures.

To protect our New York State forest lands and provide for an annual yield, which shall be permanent, we have asked the United States forestry department to supply us with a working plan for cutting our wood and the department is now at work upon such a plan. So long as we are able to make up the deficiency between our consumption and the annual growth of our own wood, at anything like the present prices for Canadian wood, we shall lumber, under the plan proposed by the United States Department. Should an export duty bar us from the Canadian market, we would be forced to increase the cutting upon our own land, and should the present tariff schedule on news print be reduced so that we would be forced to compete with the Canadian mills, having the chief source of wood supply above referred to, it would be necessary to look to our own wood land for our entire supply of pulp wood, which would mean that in not to exceed twenty-five years the land would be denuded. Were it not for the rapid increase in value of our New York State wood land, it might be that there would be a greater profit in denuding the property and keeping out of the Canadian wood market than under the present plan of operating.

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The present tariff schedule is satisfactory to this company, and to reduce it means to compel us to seek our source of supply of raw stock in northern New York; and, while it may mean that we shall be able for some years to compete with the Canadian mills, it plainly means that this can be done only through a sacrifice of the future forest growth in our section. The only way to prevent this effect of any substantial tariff reduction would be for the State of New York to condemn the forest land and pay its present value.

In conclusion I desire to express, on behalf of our company, our approval of the conclusions expressed by Mr. Lyman on behalf of the International Paper Company.

Respectfully submitted.

FINCH, PRUYN & CO. (INC.),
By GEO. N. OSTRANDER,
Manager Woodlands.

The following gentlemen also appeared, representing manufacturers of paper, but did not address the committee:

F. M. Hugo, Remington Paper Company, Watertown, N. Y.

D. M. Anderson, St. Regis Paper Company, Watertown, N. Y.

Geo. W. Wheelwright Paper Company, represented by John T. Wheelwright and George W. Wheelwright, jr.

The CHAIRMAN. I want to say to you, gentlemen, that on Monday we will take up crockery and glassware, and of course it will be evident to you that even if you wait over you would not have an opportunity to be heard. That is a large interest, and a great many people will have to be heard upon that subject. The committee regrets that it can not hear all of you to-day. Perhaps there might have been a little more expedition, but we have tried to rush along as fast as we could. I will say, however, that if you will file your briefs at any time before the 4th of December they will be printed along with these hearings as though they were presented and read before the committee; and the committee will have an opportunity to read them all.

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APPENDIX.

WOOD PULP.

BOSTON, *November 19, 1908.*

CHAIRMAN OF THE COMMITTEE ON WAYS AND MEANS,
Washington, D. C.

DEAR SIR: The Geo. W. Wheelwright Paper Company are manufacturers of paper, with mills producing about 50 tons of paper per day of book grades. These mills are situated in Massachusetts within about 50 miles of Boston. Our location precludes the manufacture of wood pulp, as all forests are distant and fuel is high.

We are using a considerable quantity of chemical wood fibers, both domestic and imported. The soda fiber we use the most of is all of domestic make, but the stronger fiber made by the sulphite process we use more largely of the imported, for the reason that it is of superior quality to the general product of the domestic pulp mills and is sold at a higher price and to a great extent are not competitive, as the domestic pulp is an inferior quality and can not be substituted for the imported, which commands a price which certainly averages a quarter of a cent a pound higher. An increase in the duties would be a hardship on us for the reason that we must continue to buy the foreign product, as the home producers have never supplied pulp of the quality we desire, and we are certain we should be unable to advance our prices to offset increased costs.

There are comparatively few pulp mills whose product is sold to mills using but not producing pulp, and the market for domestic pulp is largely controlled by mills producing and using pulp in the manufacture of paper and selling their surplus. It is doubly the interest of such manufacturers to favor the exclusion of imported pulps by higher duties, as it benefits them both in the sale of pulp and of paper.

For the foregoing reasons we protest against any advance in the duties on pulp.

The present quotations for foreign pulp for immediate shipment are abnormally low, due to the unfavorable business conditions which have prevailed, and should not be considered in any adjustment of duties for the reasons of market conditions, as explained by one of our English correspondents who is well posted. We quote below their letter of October 31:

"With reference to sulphite supplies, would you consider the question of picking up what may be considered a bargain for delivery this year? The point is this: Owing to dullness of trade, many paper makers in this country are not able to take out their contracted supplies, consequently some paper mills in Scandinavia have stocks inconveniently large. This condition of affairs will, we think, be only temporary, because the price has now sunk below cost of

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production. A movement is on foot in Scandinavia to reduce production by 30 per cent for three or six months. All Norwegian mills have agreed to this and more than half the Swedish mills. They are, however, waiting for more complete unanimity before putting this plan into operation. In the meantime several mills will shut down for a month or more on their own account without waiting until the pulp associations have come to a decision. It is to be expected, therefore, that during next year the supply will adjust itself to the demand, but in the meantime for financial reasons there are stocks which will be going cheap. If you could take 200 or 300 tons for this year, we could probably make you a special offer.

"We have dispatched to you a sample of our G pulp, and we have to-day sent you a further sample of our T pulp. You have already a sample of the HX. These three brands all run much the same and are popular in this country as being easy bleaching suitable for printings. From one or other of these mills we could possibly supply you with cheap lots for this year. We can not quote at present until we know that you will be open, but on hearing from you we would lay an offer before you.

"Respectfully, yours,

"GEO. W. WHEELWRIGHT, *President.*"

BOSTON, *November 20, 1908.*

To the CHAIRMAN WAYS AND MEANS COMMITTEE,
Washington, D. C.

DEAR SIR: We understand that the American Pulp and Paper Association are advocating and are going to present to you on the 21st instant their views as to raising the duty on imported pulps from Europe to 100 per cent.

We are members of the above association, but we wish to go on record as being strongly opposed to any such change in the tariff.

We are not manufacturers of pulp and are obliged to buy all of our pulp for the manufacture of our paper, and while we buy more or less of it made in this country as well as in Canada we still buy a large quantity from Germany and Sweden, for the reason that the quality of our paper demands in some instances a better grade of pulp than can be made in this country. We have never yet seen pulp made here of as good quality as that made abroad, and while there are a few mills here that if they exerted themselves could manufacture this quality, they would not make enough to supply the demand for this grade, and if the duty were raised 100 per cent on the foreign pulp they could make their prices exorbitant. Many of the mills in this country make their own pulp and their own paper together, and have some pulp for sale, and a raise in the duty to this figure would benefit them very materially, but it would be a distinct detriment to the mills like ourselves who are obliged to buy pulp in the foreign market, and a large proportion of the paper so made in this country is made by mills situated in similar circumstances as ourselves.

We trust that no change will be made in the way of an increase of duty on European pulp.

Yours, very truly,

MONADNOCK PAPER MILLS,
A. J. PIERCE, *President.*

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BOSTON, *November 20, 1908.*

Mr. SERENO PAYNE,
Chairman Ways and Means Committee, Washington, D. C.

DEAR SIR: This company is opposed to any increase of duty on wood pulp for the following reasons:

Our mill is situated near this city and produces about 30 tons of high-grade paper per day. We buy all of our wood fiber, not being able to manufacture it, owing to the location of our mill. The low grades are almost entirely of domestic production, but many of the higher grades of foreign sulphite fiber are of superior quality to any made in this country, and for that reason we are compelled to use them in order to obtain certain desired traits in our papers.

We are content with the present duty on wood pulp, and believe that it is probably necessary for the protection of the American pulp manufacturers.

We protest, however, against any increase in the said duty. The majority of paper mills in the United States make their own pulp, manufacture the larger part of their pulp into paper, and sell any surplus which they may have. An examination into the cost of paper making and into the price at which these mills sell their paper will very quickly show at what value they take their own pulp when put to their own uses, and tend to confirm our belief that they already have ample protection.

Very respectfully, yours,

TILESTON AND HOLLINGSWORTH COMPANY,
GEO. F. CHILD, *Treasurer.*

SPRUCE PULP WOOD AND LOGS.

DETROIT, MICH., *November 23, 1908.*

Mr. SERENO E. PAYNE, Esq.,
Chairman of Ways and Means Committee,
Washington, D. C.

DEAR SIR: I take pleasure in advising you that I am engaged in the business of buying and selling all kinds of manufactured lumber at wholesale and retail at Cleveland, Ohio. I have been engaged in this business during the past thirty years, and I wish to place myself on record for free lumber and all other wood raw-material products from Canadian markets. It is really ridiculous to continue a $2 per thousand tax on pine lumber when it is so clearly known to all men familiar with the present lumber trade that at this period pine lumber is sidetracked as a building material in the construction of houses and southern yellow pine has taken its place for that particular purpose.

At this period Canadian pine lumber has developed itself into the raw-material class on account of its high prices and scarcity of same. At the present time it is nearly wholly used by factory men in the manufacture of doors, window sash, moldings, and patterns for iron castings, etc., and therefore it does not come in competition with other lumber manufactured in the United States which is used in the building trade.

However, while I am firmly convinced that it is just and equitable to the American people to place Canadian lumber on the free list, I

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do suggest that you should demand something in exchange from Canada in return for this favor, and that should be spruce pulp wood and logs free of Canadian export duties in the Province of Ontario, Georgian Bay and Lake Superior districts. I am informed this particular item (spruce pulp wood) Canada is prohibiting the exportation into the United States by government stipulations in the sale of spruce-timber lands. Believing your committee will give my request for free lumber and all other raw-wood material favorable consideration, I remain,

Yours, very truly, C. M. ZENGERLE.

PRINT PAPER.

ST. REGIS PAPER COMPANY,
Watertown, N. Y., November 23, 1908.

Hon. S. D. PAYNE,
Chairman Ways and Means Committee, Washington, D. C.

DEAR SIR: I desire to call your attention to a statement made by John Norris in his brief presented to your committee on Saturday, November 21, which is untrue, together with evidence thereof.

The following appears in the first paragraph of Mr. Norris's brief:

> This curtailment of production has been availed of by paper makers generally to mark up the price of news print paper this week to $55 per ton New York, or $20 per ton in excess of the price which prevailed when the Ways and Means Committee considered this schedule twelve years ago, and $15 per ton in excess of the price which would prevail under normal conditions.

I inclose herewith a copy of a letter written by me to Mr. Norris on November 13, in which we quote him paper at the rate of $42 per ton for an annual contract of 3,000 tons or more f. o. b. mill. The rate of freight to New York from the mill is $2.60 per ton, making our quotation 44.60 per ton New York instead of $55 per ton New York.

Our quotation to Mr. Norris of November 13 has not been withdrawn; indeed, the quotation was confirmed to Mr. Herman Ridder, president of the American Newspaper Publishers' Association, during the week, and as late as Saturday, November 21.

I also inclose quotations published by the New York Journal of Commerce and the Commercial Bulletin in their edition printed Saturday morning, November 21, confirmatory of my own quotations, and representing, from their own investigations, current prices.

Yours, very truly,

G. C. SHERMAN.

EXHIBIT A.

ST. REGIS PAPER COMPANY,
Watertown, N. Y., November 13, 1908.

JOHN NORRIS, Esq.,
American Newspaper Publishers' Association,
New York City.

DEAR SIR: Messrs. H. G. Craig & Co., sales agents of the St. Regis Paper Company, have been authorized to establish the following

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prices, subject to change without notice. These prices apply to our product in the eastern territory, and are absolutely invariable, not only as to price but to terms as well. The quantities are for annual consumption, to be shipped monthly during the year, as near as may be, viz:

3,000 tons or more	$2.10
2,000 tons to 3,000 tons	2.12½
1,000 tons to 2,000 tons	2.15
500 tons to 1,000 tons	2.17½
100 tons to 500 tons	2.20

Prices f. o. b. cars mill, cash thirty days from shipment. Paper to be charged at gross weight, including cores, cores to be credited at 1 cent per linear inch when delivered to the mill. While we have noted that prices are subject to change without notice, it is not intended that they will change excepting as conditions change.

Our product is, as you know, not elastic, and we can not sell more than our unsold production, based upon normal running. At the present time we have about 60 tons a day available for 1909.

When water conditions become normal again, we intend to make a public quotation for such tonnage as we have available for immediate delivery, or, say, within thirty days, but just at the moment we are not disposed to quote on any other basis than for yearly contracts.

Yours, very truly, G. C. SHERMAN.

EXHIBIT B.

Paper.—Little improvement is reported in the water-supply situation at the mills and the consequent restriction of production keeps available supplies of news print scarce. With a good demand for both sheet and roll the market is very firm. Increasing demand is noted for wrappings, and a good business is being done in book and writing papers at full prices.

Roll, annual contracts, f. o. b. mill	$2.05	@	$2.10
Roll, transient orders, immediate delivery	2.25	@	2.50
News, sheet, annual contract, f. o. b. mill	2.15	@	2.20
News, sheet, transient orders	2.30	@	2.50
Wrapping, No. 2, jute			4.37½
Wrapping, manila, No. 1, wood	2.65	@	3.15
Wrapping, manila, No. 1, jute			4.75
Wrapping, manila, No. 2, wood	2.35	@	2.60
Wrapping, hardware	3.50	@	4.50
Writing, flat, ledger and record	.09	@	.20
Writing, superfine	.11	@	.17
Writing, fine	.07½	@	.09
Writing, engine sized	.06	@	.07½
Book	3.50	@	3.80
Book, coated	.05	@	.06½
Tissues, white, No. 1	.40	@	.41½
Tissues, white, No. 2	.37½	@	.40
Tissues, colored	.40	@	.41½
Tissues, manila, No. 1	.35	@	.40
Tissues, manila, No. 2	.35	@	.38
Strawboard, carload lots, per ton	20.00	@	25.00
Newsboard, carload lots, per ton	24.00	@	27.00

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INTERNATIONAL PAPER COMPANY.

JOHN NORRIS, REPRESENTING THE AMERICAN NEWSPAPER PUBLISHERS' ASSOCIATION, SUBMITS SUPPLEMENTAL STATEMENT.

NEW YORK, *November 30, 1908.*

COMMITTEE ON WAYS AND MEANS,
House of Representatives,
Washington, D. C.

GENTLEMEN: In view of the fact that the chairman asked a representative of the International Paper Company to submit a statement of the securities given in exchange for mills merged into that company, I venture to furnish a memorandum bearing upon the condition of those mills when merged. I present the following.

Yours, truly,

JOHN NORRIS,
Chairman Committee on Paper,
American Newspaper Publishers' Association.

In January, 1898, all the large paper mills of the Eastern States, with a few unimportant exceptions, were merged into the International Paper Company. This corporation was capitalized upon a basis of $55,000,000, divided as follows:

Bonds	$10,000,000
Preferred stock	25,000,000
Common stock	20,000,000

The basis of the consolidation was as follows:

Corporation.	Tons.	Total.
Glen Manufacturing Co	135	$4,344,000
Winnipiseogee	70	2,135,100
Fall Mountain	100	4,105,507
Russell Paper	20	684,000
Niagara Falls	120	3,059,800
Webster Paper	26	592,800
Haverhill	40	228,000
Hudson River (Plattsburg, Glens Falls, St. Maurice Lumber Co.)	150	3,193,280
	275	7,965,635
Umbagog	20	556,800
Otis Falls	150	4,976,530
Falmouth	60	.....
Herkimer	25	592,800
Lake George	50	1,231,200
Turners Falls	11	228,000
Rumford Falls (plus Woodland)	100	2,280,000
Piercefield	30	506,000
Ontario	26	412,000
Montague	50	1,048,000

Five of the paper mills (Rumford, Niagara, Fall Mountain, Turners Falls, and Montague) rented their power at a total annual cost of $196,000 per annum. Two others were run by steam, which made successful competition by them impossible, and five others had insufficient power. Four owned no wood lands and ten of the mills had no sulphite auxiliaries.

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One hundred and one paper-making machines were comprised in the plants of these mills, but only half of them were of recent construction or of desirable pattern. Fifty of the paper machines in the mills were almost worthless. Mr. Whitcomb, general manager, on page 1072 of his testimony before the Mann committee, submitted a table of 67 paper machines making news print paper. Referring to a list of 101 paper machines, he said:

> They were all making news at the time they were taken into the company. Out of this list of machines, 3 were sold, that is, the mills containing 3 machines were sold; 15 machines were discontinued; 5 machines were leased; the plants containing 5 machines are at present under lease.

In further explanation of Mr. Whitcomb's testimony and to reconcile his statement that only 67 paper machines are now making news print paper, it should be stated that 15 machines have been diverted to the making of other kinds of paper.

Not one of the mills in all the combination possessed all of the six essentials of the cheapest and most successful manufacture, namely, cheap wood, cheap and ample water power, cheap rates to market, modern machinery, wholesale production and concentration at one place under one supervision.

One mill (Haverhill) was dismantled after purchase. One mill included in this combination (Rumford Falls) made profits of $488,000 in four months on a capital of $500,000 and entered the trust on a basis that yielded $4.50 for every dollar of original investment, so that in forty-four months the total return on an investment of $500,000 was $2,750,000. Yet that mill was in such poor shape when acquired by the trust that an enormous outlay was necessary to bring it into condition.

Another mill (Ontario) averaged profits of from 32 per cent to 48 per cent per annum, and took $4 in trust securities for every $1 of its stock.

One plant (Lawrence) which could not make newspaper on a number of its machines was unloaded upon the trust at a valuation of $22,000 per ton of daily output as a premium to the promoter of the International Paper Company, Mr. W. A. Russell.

Another mill that had not made any money in ten years was turned in at $22,000 per ton of daily output.

For a mill (Herkimer) that made not 1 cent of profit in 1897—a mill which had no water power, no sulphite attachment, and which carted its pulp 2 miles, an appraisement of $570,000 was put upon it in its merger into the trust.

An allowance of nearly $8,000,000 was made for a mill (Glens Falls) one-half of which might better be located upon Boston Common or in New York City. Five years previous the capital stock of that concern had been $300,000.

Another company which was merged into the trust on a basis of $3,500,000 had been started on an investment of $60,000—Glen Manufacturing Company.

These details are given to show the character of security which you are now asked to protect.

Respectfully submitted.

JOHN NORRIS.

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PRINT PAPER.

ARTHUR C. HASTINGS, NEW YORK CITY, FILES SUPPLEMENTAL STATEMENT RELATIVE TO PRINT PAPER.

NEW YORK, *December 3, 1908.*

Hon. SERENO E. PAYNE,
Chairman Ways and Means Committee, Washington, D. C.

DEAR SIR: I am glad to be able to take advantage of your kind request for information from the manufacturers' standpoint as to what the effect would be on the paper manufacturers by the removal of the duty of $6 per ton on printing paper; also the answer to the request of Mr. Underwood at the proceedings on November 21, evening session; also the request of Mr. Gaines as to the increased cost of a single paper of certain size and weight. I will make each of these calculations and attach hereto. The actual cost conditions in other countries than our own make it necessary that the present duty be retained if the paper manufacturers in the news or wood papers, or so-called wood papers, are to continue in business. I believe that there has been enough testimony before your committee and the Select Committee of Congress to prove that there has been no adequate return on the capital invested in the paper-manufacturing business in the last twenty-five years, and that the reduction of the duty would mean in a very short time the actual extinction of the average United States paper mills making so-called wood papers.

On behalf of the association I desire to thank you and all the members of the committee for the very courteous treatment they extended to us and the time given the members of the association when in Washington.

Yours, respectfully, ARTHUR C. HASTINGS,
President.

EXHIBIT A.

NEW YORK, *December 3, 1908.*

MEMORANDUM OF COMPARATIVE COST OF NEWS PAPER AS COMPARED WITH OTHER COUNTRIES.

The figures which are used in this compilation are gathered from reports made by the Department of Commerce and Labor from payroll sheets of the International Paper Company, and would be more correct probably than any figures, coming from an individual mill. Based upon these figures, the rates as to the cost of labor for a ton of finished paper is, in the United States, about $8; in Canada, $5.46; Norway and Sweden, $2.22; Germany, $2.48; Austria, $2.09; so that the difference in cost of manufacture in wages alone for all the countries named, except Canada, is nearly the amount of duty, or $6 a ton. Taking the lower cost of material used in a paper mill which a United States manufacturer has to pay the difference of coming from these countries, their cost of production is more than $6 a ton less than ours.

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As to the Canadian duty, which is $2.54 a ton on labor alone, there should be added the saving made in manufacture in Canada over the United States mill through their cheaper supply of wood, due to the fact that the actual labor in the woods is cheaper there than in the United States and the fact that many of the mills have the wood delivered to them from the river without any freight. These two items alone, labor and wood, would practically make up the difference in the cost amounting to the present tariff. The matter of cost has been gone into so exhaustively by your committee and the select committee of Congress that this information could be gotten in detail much more readily than I could give it to you.

When the manufacturers of paper in this country do not have enough business to keep their mills fully supplied with orders, prices naturally go down. When there is more than enough business to keep them supplied the prices naturally go up, and foreign paper comes in, as the foreigner can export to this country profitably at any time, pay the duty, and leave him a profit. In Germany they can export their surplus at an actual manufacturing loss and keep their prices up in the home market. If the duty were removed it can be readily seen what the outcome would be.

Yours, respectfully,

ARTHUR C. HASTINGS, *President.*

EXHIBIT B.

NEW YORK, *December 3, 1908.*

MEMORANDUM OF SAVING IF DUTY WERE REMOVED AND THE SAVING ACCRUED TO THE PURCHASER.

While I do not admit that the removal of the duty on news paper would result in a saving to the publishers of the duty collected, supposing for the sake of argument that it did, an eight-page paper of the Staats Zeitung size, of New York City, of the date of December 3, 1908, as an example, 1,000 copies would weigh 120 pounds. At 2¼ cents per pound, the cost would be $2.70, or the cost per single copy of $2\frac{7}{10}$ mills. The present duty, amounting to $6 per ton, would amount on 1,000 copies to 36 cents, or on a single copy to thirty-six one hundredths of a mill. It takes 8 papers to weigh 1 pound. On the average rural newspapers using a sheet of paper 30 inches by 44 inches, weighing 100 pounds to 1,000 sheets, having a weekly circulation of, say, 1,000 copies or 52,000 copies in a year, the saving would be, if the price were 2½ cents per pound, $15.60, or on a single copy three-tenths of a mill. It would take 10 papers of this size to weigh 1 pound.

ARTHUR C. HASTINGS.

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ROOFING FELTS AND WOOLEN RAGS.

THE VOLNEY PAPER COMPANY, FULTON, N. Y., ASKS RETENTION OF PRESENT DUTY ON ROOFING FELTS.

FULTON, N. Y., *November 17, 1908.*

Hon. SERENO E. PAYNE, *Chairman,*
AND MEMBERS OF THE WAYS AND MEANS COMMITTEE,
Washington, D. C.

GENTLEMEN: We submit herewith a sample of paper used by manufacturers of ready-made roofings. It is called "roofing" or "saturating felt." When saturated with asphalt or tar it is made into roofings. This paper is made from satinet garments, cotton and woolen rags.

There are 25 mills in the United States engaged in the manufacture of felt papers of various grades who employ about 2,600 men. The daily capacity of these mills is approximately 650 tons, or 200,000 tons per year.

In the manufacture of this paper 250,000 tons of rags of various grades are used. The average cost of the rags is approximately $20 per ton. The total consumption of rags is valued at, say, $5,000,000.

We are advised by a collector of customs that the import duty on this class of paper is 10 per cent ad valorem, and because of the difference in the price of labor in the United States and that of foreign countries we respectfully request that this small import duty be retained.

FOREIGN RAGS.

During the year 1907 there were imported into the United States, duty free, 80,000 tons of cotton rags. Of this amount perhaps 35,000 tons were used in the manufacture of roofing felts, which would indicate that 215,000 tons of this low grade of rags were gathered in the United States.

During the past two years new uses have been found for this low grade of rags. Shoddy mills are now using them. They are put through a picker and used in the manufacture of cheap mattresses, horse collars, and for stuffing toys. This reduces the amount of stock available for saturating felts.

To make soft saturating felts it requires rags containing a percentage of wool. One hundred pounds of soft saturating felt must absorb 160 pounds of tar.

If rags containing some wool and costing not to exceed 1½ cents per pound were admitted duty free, it would enable the felt-paper manufacturers to secure the low grade of satinets, which are necessary. The old satinet garments contain a small percentage of wool and produce better saturating paper. This will be an advantage to consumers without increasing the cost of the roofing.

We therefore ask that rags containing a small percentage of wool and costing not to exceed 1½ cents per pound be admitted duty free.

We trust that you will give these facts your careful consideration and if possible grant our requests.

Yours, very truly,

VOLNEY PAPER COMPANY,
G. G. CHAUNCEY, *Secretary.*

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STRAWBOARD.

THE CALIFORNIA PAPER AND BOARD MILLS, SAN FRANCISCO, ASK FOR A HIGHER DUTY ON STRAWBOARD.

SAN FRANCISCO, *November 20, 1908.*

Hon. J. C. NEEDHAM, M. C.,
Washington, D. C.

MY DEAR MR. NEEDHAM:

* * * * * * *

We are the only company left on this coast manufacturing strawboards, all the others having gone to the wall. We have been forced through foreign competition on strawboard to almost abandon the production of that important article.

This board is made from straw produced by the farmer and with the use of lime and other products manufactured on this coast. The market is now being supplied with strawboard from Japan, Germany, and Holland.

The lowest labor that we have in our employ is $1.75 per day, and this varies up to $5 per day. Our last figures on the cost of production show that it costs us $27.88 to produce a ton.

The receiver of the United Boxboard Company, which failed in the East recently, in his printed report shows that it costs them East about $26. No doubt the difference being in slightly reduced common labor.

A wholesale paper house here has lately contracted for 500 tons of strawboard from Holland at $28.50 per ton delivered in this city, duty and freight paid.

As the raw material costs them very near as much as it does us, you will see the difference is almost entirely in the cost of labor. Deducting freight and the present tariff, they only receive about $16 for their boards at the mill, whereas it costs us at least $10 more per ton to produce the same board at our mill, which difference is represented in the increased wages we pay our help.

Under the circumstances, not only should the duty not be reduced on strawboard, but, in order to keep this industry from entirely ceasing, it should be increased.

If this were done we would be able to use more raw material produced by the farmer and other products of the producer in this State, keep our present help at their present wages, and our money on this coast, instead of sending it abroad.

I am writing to you personally because of my old acquaintance with you, and also because this company is the only one on this coast engaged in this form of business, and it was impossible to join with any other interests in presenting the matter.

Japanese strawboard is selling in this market, duty and freight paid, for $28 to $30 per ton, according to sizes.

Thanking you in advance for any attention that you may give this request, and hoping to hear favorably from you in regard to it, I am,

Very truly, yours,

M. R. HIGGINS, *President.*

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SWEDISH KRAFT PAPERS.

THE HUBBS & CORNING COMPANY, BALTIMORE, MD., SUBMITS BRIEF RELATIVE TO KRAFT AND GREASE-PROOF PAPERS.

BALTIMORE, MD., *December 3, 1908.*

Hon. SERENO E. PAYNE,
Chairman Committee on Ways and Means,
Washington, D. C.

DEAR SIR: Having listened with much interest to the proceedings of Saturday, November 21, 1908, before your honorable committee on Schedule M, pulp, paper, and books, I wish to submit some facts for your consideration on the so-called Swedish kraft (strong) papers, also parchmyn or pergamyn, and grease-proof papers. In submitting these facts I do so in behalf of Hubbs & Corning Company (Incorporated), Baltimore, Md., and New York City, dealers or jobbers in domestic wrapping papers and importers of the above-mentioned foreign papers, and last but not least the wrapping paper consuming public generally. These papers now pay a duty of 25 per cent ad valorem under paragraph 402, and we strongly urge and recommend no raise in this rate nor change in classification. It has been fully demonstrated that kraft papers can be produced in this country, to compete with the imported, and at a profit. There are at the present time three large and progressive mills in this country manufacturing a similar article, and, we understand, from pulp manufactured by themselves. A fourth mill manufactures such a paper from pulp made in Canada, on which they pay an import duty into this country. A fifth mill, recently built, we are told, equipped themselves with machinery for manufacturing papers of the "sulphate" process, or kraft papers.

I respectfully submit it is not reasonable to suppose that these mills have gone to the expense of installing new machinery and making possibly expensive alterations in their plants necessary to produce an article in which they can see no profit.

The home manufacturer has a protection over and above the 25 per cent duty now existing in the amount of expense incurred in importing and warehousing the foreign article, which on an importation of 5 tons amounts to between 25 cents to 35 cents per hundredweight. There are fixed charges, such as consular fees, wharfage, and labor charges at dock, at times high rates of foreign exchange, marine insurance, and in most Atlantic coast ports there is either a lighterage charge to docks closer and cartage to warehouse or an extremely long and expensive cartage.

The American manufacturer, with the exception of those who have seen the growth of imported goods and have risen to meet it by producing a competitive article, want a tariff sufficiently high to enable them to continue the short-method production of poorer and weaker wrapping papers, and the further destruction of our forests. They do not want to admit, without a struggle, that the old methods are "passé," and that the public are demanding a better and stronger wrapping paper for the protection of their merchandise, and if home mills can produce such a paper, and it has been proven they can at a

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profit, why then should the wrapping paper consuming public be made to suffer by an increase of duty? Such an increase would discourage the manufacturer of what has become a necessary article in this country—a strong paper without unnecessary weight; inasmuch as it would entail an extra expense to equip domestic mills with the necessary machinery for making kraft papers, it is not likely, under a higher tariff, that they would go to this expense, but would be satisfied to continue along the same old lines, grinding up our pulp wood faster than is necessary, were they making a stronger, thinner, and better paper.

A higher duty will do exactly what the American manufacturers of wrapping paper are arguing for—keep out the foreign paper and keep down the standard of quality of American made goods below the point of efficiency. The whole trouble has been that home manufacturers have not studied the best interests of the consumers by making a paper sufficiently good and strong, and at the same time light enough in weight to be attractive in price. Had they done so the foreign article could never have gained a hold in this country.

I do not think the duty should be so high that it enables the American manufacturer to make money without using the necessary amount of brains, and competition is the only encouragement for superiority in one line of American goods over another. The American manufacturer has the cure for the ailment in his own brains and hands, which Providence has given him to use for his own advancement.

We can not all be manufacturers; if we could, I would say give us a higher tariff, but some of us have to be dealers, consumers, and even importers, and need protection as well as the manufacturers.

The gentleman who represented the wrapping-paper manufacturers before your honorable committee gave comparisons in costs and selling prices of a 60 per cent sulphite paper made in this country, against the foreign kraft paper, which is a 100 per cent chemical pulp paper, and this is in no sense a fair comparison. He should have compared the foreign kraft papers with a paper made from what is known as pure slow-cooked or Meisterlich sulphite pulp, and the difference in weight and cost per ream for the same strength would have been nearer equal. His comparison was ridiculous and misleading. Using this gentleman's figures for making and shrinkage as a basis, which is conceded to be about correct, in the first place the mill making paper to-day profitably has to have its own sulphite plant and paper machine. At this rate sulphite would cost $30 per ton or $1.50 per hundredweight; shrinkage would be 10 per cent, which would be 15 cents per hundredweight; the manipulation and manufacturing costs 80 cents per hundredweight; in other words, pulp made and turned into paper at $2.45 per hundredweight, giving a pure sulphite paper of the ordinary quick-cooked sulphite.

The slow-cooked or Meisterlich process would cost $35 per ton at the mill, or $1.75 per hundredweight; shrinkage at 10 per cent would be 17½ cents per hundredweight; manipulation, 80 cents per hundredweight; total, $2.72½ per hundredweight. Allowing the mill a profit of $10 per ton, or 50 cents per hundredweight, would make the cost of quick-cooked finished paper $2.95 per hundredweight and the slow-cooked finished paper $3.22½ per hundredweight. In other words, 35 pounds pure sulphite, quick cooked, would cost $1.02½ per ream

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of 480 sheets, 24 by 36 inches, and would test and give a wearing strength better than 25 pounds to a ream of 480 sheets, 24 by 36 inches, of pure kraft imported paper. Twenty-five pounds per ream, 24 by 36 inches, paper made by the slow-cooked process in this country tests practically the same as the same weight and thickness of imported kraft paper and would cost the mill 78 cents per ream, so that it is much cheaper paper to use than the kraft paper.

The gentleman's statements are unreasonable from the fact that he is figuring $35 per ton as the cost of sulphite, whereas that is a good, long, liberal price. He has no right to figure an adulterated paper against a pure article, which he has done by figuring 40 per cent ground wood and 60 per cent sulphite. The ground wood does not add anything to the paper as far as wrapping qualities go. It only cheapens the quality, as it has no strength. He uses the freight rate of $4 per ton, or 20 cents per hundredweight, in his comparison on the domestic paper only, which is exceptionally high, as freight rates will not average over 15 cents per hundredweight. He allows no freight on the imported kraft paper, and the only place the kraft paper can be bought without freight is at seaport towns; and the consumption of kraft paper in seaport towns is a very small percentage of what is used in the country, for it is principally used in manufacturing purposes of all kinds.

In figuring on kraft paper he figures 25-pound basis, which always costs more than the heavier weight; he adds 25 per cent duty and nothing else, while to land this paper at the warehouse even in seaport towns would add 25 cents to 35 cents per hundredweight to his figures. Then again he admits the cost of the adulterated (60 per cent sulphite and 40 per cent ground wood) paper would be $2.55 per hundredweight, including the extravagant freight, and then figures the price to the consumer at 3¼ cents per pound, which puts on the handsome profit of 70 cents per hundredweight—almost 30 per cent.

Now taking his cost for the foreign paper in 25-pound basis at $3.75 per hundredweight, adding extra such as interest, insurance, consular fees, brokerage fees, dockage, etc., and this would bring his cost to 4 cents per pound. But he is wrong in his figuring, for No. 1 kraft paper, 25-pound basis, can not be brought into this country and delivered in warehouses for anything like this price; and, furthermore, is not offered to the consumer at 4¼ cents per pound, but would average nearer 4¾ cents per pound for this weight. So you can see it is not a case of cheapness either by comparison of weights, using lighter weight in foreign than in domestic, or by actual price of the goods, but simply the fact there is not enough first-class paper made here, because the mills prefer to make tonnage product and make a cheaper article and make more pounds, whereas the consumer desires a light-weight, strong wrapper.

He should have figured his profits equal, giving each a fair showing, and if he is going to figure freight, figure the quantity of kraft paper that goes to the interior, and add to this 20 cents per hundredweight for freight, as he has done on the domestic paper, which is only right, it would bring the kraft paper up and make it all the more prohibitory at its present price and rate of duty; and if you compare qualities you have to compare the best quality and 100 per cent of the best quality of the pulp made here against the same percentage of the best

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quality of pulp made abroad. The foreign pulp can be brought in here and manufactured, including $2.25 per hundredweight for the pulp, 22 cents per hundredweight for shrinkage, and 80 cents per hundredweight for making, and 15 cents per hundredweight for freight; total $3.42, showing that the pulp can be brought here and kraft paper manufactured in this country cheaper than the paper itself can be imported, and we further feel confident that the pulp can be made in this country just as cheap as it can be made in any other country, for we have the wood, and the manufacturing of pulp is a chemical process taking very little labor in comparison with the machine work, and the machine end of it and the chemical end of it costs practically the same in one country as in another.

Your committee has already heard facts concerning parchmyn or pergamyn and grease-proof papers from a manufacturer of these papers in this country, showing that under an unsatisfactory condition of business during the so-called panic of 1907 and a tariff on the foreign article of 25 per cent, this manufacturer was blessed inasmuch as he stated he had made a profit of approximately $10,000, or 3 per cent, on his capital invested. This mill started to make these papers on a small scale of an inferior quality, and has advantages now, in that he has proved he can make a profit and make prompt delivery, and has a further advantage of freight rates for interior business.

Now, if he can make a profit on the lines he is working along, why can he not increase this profit each year by making a better article as he increases his product and thereby minimize his expense? At the classification he asks, which means a higher rate of duty, he might just as well have a patented article, and the consumers who are obliged to use this class of paper would have to pay an enormous profit for the imported article, while he is getting in a position two or three years hence to take care of the business, as such an increase would in all likelihood cut the import down to about one-half at once. It is used now largely for wrappers for patented medicines, canned goods, and articles of this sort, simply to preserve the label and to keep them from dust and dirt, and being transparent the label can be read through the parchmyn paper. This is quite an expense which the manufacturer of these articles did not have to incur, but as the paper was reasonable and within reach in price they have adopted it for this purpose, thereby giving the consumer cleaner and better packed goods. Excessive duty would not improve the standard of the American goods in this case, but would be a great drawback.

All of which is respectfully submitted.

Very truly, yours,

A. J. CORNISH, Jr.,
Assistant Treasurer.

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VEGETABLE PARCHMENT PAPER.

THE PATERSON PARCHMENT PAPER COMPANY, PASSAIC, N. J., WISHES RETENTION OF PRESENT RATES ON ITS PRODUCT.

PASSAIC, N. J., *December 2, 1908.*

Hon. SERENO E. PAYNE,
Chairman of the Ways and Means Committee,
Washington, D. C.

DEAR SIR: In view of the hearings on tariff revision now being held by your committee, we beg to respectfully submit the following:

First. The merchandise we produce is parchment paper, which is manufactured from an unsized paper made from cotton rags, and treated with sulphuric acid or other suitable reagent. Two processes are involved—making the unsized paper from cotton rags and parchmentizing with sulphuric acid. (Sample of each is attached hereto.)

Second. The paragraph of the present tariff act we are interested in is Schedule M, paragraph 398:

> Surface-coated papers not specially provided for in this act, two and one-half cents per pound and fifteen per centum ad valorem; if printed, or wholly or partly covered with metal or its solutions, or with gelatin or flock, three cents per pound and twenty per centum ad valorem; parchment papers, two cents per pound and ten per centum ad valorem; plain basic photographic papers for albumenizing, sensitizing, or baryta coating, three cents per pound and ten per centum ad valorem; albumenized or sensitized paper or paper otherwise surface-coated for photographic purposes, thirty per centum ad valorem.

Third. We respectfully petition that no reduction be made in the rate of duty now levied, but rather that it be increased; and that should a minimum and maximum rate be adopted, it would be necessary for the protection of our industry to have the present rate (2 cents per pound and 10 per cent ad valorem) a minimum rate. A higher rate of protection would be absolutely necessary should wages decrease in Germany at any time.

Fourth. Our reasons for asking that no reduction be made are that with lower tariff the foreign manufacturers will be able to compete with us in this market to such an extent as to seriously injure our business. The manufacturers in Germany are more numerous than they are in this country, produce a greater quantity, and have frequently within the past years made a practice of exporting to this country parchment paper at prices far below the price at which parchment paper is sold in our own markets. (In reference to this, see translation of letter in Papier Zeitung, attached hereto. The Papier Zeitung is published by Carl Hoffman, of Berlin, Germany.) Herein lies the principal danger to our industry; therefore any lowering of the duty would surely result in increased importations. It is possible to produce this paper much more cheaply in Germany, Belgium, and France than in this country, and protection to more than offset wages and other costs should be granted, for the reason that foreigners could otherwise sell at a sacrifice and make it impossible for American manufacturers to compete. It appears also that the German manufacturers of parchment paper have an association which controls prices in Germany, which enables the manufacturers the better to export at cost price or less, as they are released from ruinous competition at home. (See printed circular attached.)

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The cost of labor enters very largely into our paper, for the reason that the paper goes through two processes before it is finished. In the first it is manufactured into an unsized paper from cotton rags, dried and put up into rolls; from the paper mill it is sent to the parchment mill, where the paper undergoes its treatment in sulphuric acid, thoroughly washed in water, dried again and finished, and either sold in plain sheets or printed sheets. So that it is readily seen that a very large part of the cost is labor, hence the necessity of our receiving full protection.

The industry in this country has been slowly advancing in the face of domestic and foreign competition. The Paterson Parchment Paper Company, of Passaic, N. J., was the first concern to successfully manufacture and sell parchment paper in this country, in 1885, and since then eighteen competitors have come into the market, of whom two survive, the others having been driven out mainly by the foreign competition; so that to-day the manufacturers of this paper are:

The Paterson Parchment Paper Company, Passaic, N. J.

The West Carrollton Parchment Paper Company, West Carrollton, Ohio.

The Glenn Mills Company, Philadelphia, Pa.

The competition among these three concerns is brisk, so that there is no danger to the community at large of being compelled to pay more for the paper than it is worth. In this connection we wish to call your attention to the fact that when in 1885 The Paterson Parchment Paper Company first entered the market, the wholesale price of parchment paper was 27 cents per pound, which price has gradually been reduced by competition, as related above, until to-day the selling price wholesale is 8.64 cents per pound, f. o. b. mill. The labor cost is more apt to advance in the manufacture of paper for the reason that the labor unions are advocating three tours of work in the paper mills and, in a great many cases, have succeeded in obtaining this concession. So far as this has been tried out it has resulted in increased labor cost and, should the manufacturers of parchment paper be compelled to follow the lead of others, it will readily be seen that the cost of production will increase and that increased protection would be necessary.

Since the present tariff bill was passed the increase in wages has been, in the paper mill, 50 per cent, and in the parchment mill, 25 per cent. Other expenses have increased, also, notably lumber, building materials, wrapping paper, twine, fuel, etc.

It should be borne in mind also that the waste in manufacturing parchment paper can not be used again as paper, and is a loss which adds to the expense of manufacture.

Under the present bill the industry has more than doubled, so that now $1,630,000 are invested in it and about 560 people find employment, receiving $293,000 in wages annually.

This industry is still capable of considerable expansion, as parchment paper is not as universally used in this country as it is in Europe, provided adequate protection is granted to it.

We wish to call particular attention to the fact that the paper we manufacture is known in the trade as "Vegetable parchment paper," and it would perhaps be better to so describe it in the bill, even though the words "parchment paper," as contained in the present

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bill, have been construed to mean paper produced by our process. There are other papers, especially writing papers, which are known as parchment and which are produced on the paper machine, requiring but one process, and they should be distinguished from vegetable parchment paper.

We would also point out the fact that so-called imitation parchment, glassine, parchmine, etc., are not in the same class as vegetable parchment paper, for the reason that they also are made directly on the paper machine in one continuous process and are not as valuable, mainly for the reason that only one-half of the labor is expended on them. We are of the opinion that it would be confusing to put imitations of parchment paper in the same clause as genuine parchment paper in the tariff bill, but should be covered by a separate clause.

We therefore earnestly petition your honorable body that they do not recommend a lower rate of tariff, and thus destroy whatever prosperity we have been enjoying for the past ten years.

The West Carrollton Parchment Paper Company and The Glenn Mills Paper Company desired us to present this brief, and should therefore be considered as approving it.

Respectfully submitted.

THE PATERSON PARCHMENT PAPER CO.,
WM. F. BRUNNER, *Vice-President.*

THE HARTFORD CITY (IND.) PAPER COMPANY FILES SUPPLEMENTAL BRIEF RELATIVE TO SULPHITE FIBER PAPER.

HARTFORD CITY, IND., *December 7, 1908.*

Hon. SERENO E. PAYNE,
Chairman Ways and Means Committee,
Washington, D. C.

DEAR SIR: At the time of our hearing on Schedule M—November 21—I made the statement to the committee that parchment paper was often made from sulphite fiber alone, and that it was sometimes made of a combination of cotton fiber and sulphite fiber. Sulphite fiber, as you doubtless know, is a wood product.

Mr. Elliott, who appeared before your committee on the same date in behalf of the importers and in opposition of our contention, made the statement that parchment paper (which he designated as "vegetable parchment") was made from cotton fiber, and held out the idea that it could not be made from wood fiber and that it was therefore a much more expensive paper to make than our paper.

I beg to call your attention to the inclosed copy of a letter which I wrote to Mr. Harry Zimmerman, who for several years was employed by the Friend Paper Company, of West Carrollton, Ohio, and had charge of their parchment department; also call your attention to a copy of a reply which I received from him under date of December 4 and attached samples of parchment paper which he says are made from sulphite fiber alone. Also you will note his statement that he can easily manufacture it from the sulphite fiber.

I am very sorry to take up so much of your time on this question, but it is vital to us. Our mill is now down for want of orders, and we can not meet the competition from the importers in the East, and of

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course can not sell our goods at a higher price than they can buy the imported article for, and for that reason we are not able to keep our mill going.

Very truly, yours,

HARTFORD CITY PAPER COMPANY,
By B. A. VAN WINKLE,
General Manager.

EXHIBIT A.

NOVEMBER 28, 1908.

Mr. H. ZIMMERMAN, *West Carrollton, Ohio.*

DEAR SIR: We have again had occasion to think over the proposition of parchment paper, and remembering your visit to us during last February, we have been discussing whether or not you stated to us that vegetable parchment paper can be made from an exclusively sulphite stock. As the writer remembers your statement, you stated that the vegetable parchment can be made and often is made from a purely sulphite stock and that the use of cotton fiber is not absolutely necessary, and furthermore, that the use of it depended on whether or not cotton fiber was cheaper than sulphite fiber; in other words, that which of the two fibers they used depended upon the price. As you know, we are not in position here to use cotton rags, and if we should in future decide to make this paper we would necessarily have to make it from sulphite fiber base.

Awaiting your advices with interest, we beg to remain,

Very truly, yours,

HARTFORD CITY PAPER COMPANY,
By B. A. VAN WINKLE,
General Manager,

EXHIBIT B.

KALAMAZOO, MICH., *December 4, 1908.*

HARTFORD CITY PAPER COMPANY,
Hartford City, Ind.

MY DEAR MR. VAN WINKLE: I received yours of the 28th addressed to me at West Carrollton, Ohio—same was forwarded to me at Kalamazoo, Mich.—contents carefully noted, and in reply wish to say that I will again give you the same proposition that I gave you last February. If you will remember, my proposition was that you add vegetable parchment paper with your parchmyn and glassine papers; in that way you would be manufacturing a full line of specialities for wrapping meats, lards, and butter; also for the canneries. I am sending you a few samples of vegetable parchment paper made from all sulphite pulp which I can manufacture with ease.

Now, Mr. Van Winkle, I can not quite catch the drift of your letter; you did not state in your letter, were you to take on the manufacturing of vegetable parchment, just who your vegetable-parchment man would be, and this being the case we can not be confidential as yet.

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I would be much pleased to hear from you, and wish to say that I do not know of any party who would be able to take on the manufacture of vegetable parchment with a less outlay of money than the Hartford City Paper Company.

Very truly, yours,

HARRY ZIMMERMAN,
1825 Center Street, Kalamazoo, Mich.

WOOD PULP.

THE MOUNT TOM SULPHITE PULP COMPANY ASKS RETENTION OF PRESENT DUTY ON ITS PRODUCT.

BOSTON, *December 3, 1908.*

COMMITTEE ON WAYS AND MEANS,
Washington, D. C.

DEAR SIR: The Mount Tom Sulphite Pulp Company manufactures a high grade of bleached sulphite pulp, about 30 tons daily, for fine papers, such as fine book and writing paper, and all its products is sold to mills making such paper and replaces just so much foreign pulp, as our competition is directly with the mills in Sweden, Norway, and Germany. The cost of labor at this plant is double that of the mills referred to above per ton of pulp made; we work our men on three tours in twenty-four hours instead of two tours, as the foreign mills do. We put just the same amount and kind of work in the preparation of our wood as is done in Europe—that is, in barking, boring out knots, cleaning chips, etc.—and where they employ boys, and even girls, we are compelled to employ men, as boys and girls for this kind of work in this country are not to be had or allowed by law. We cook our fiber long hours, putting the same amount and kind of work in washing, screening, bleaching, rescreening, etc., as they do.

None of the grade of pulp we manufacture is exported, while a very large amount (43,000 tons in 1897, or 42 per cent of all bleached pulp sold in this country) is imported.

From figures already submitted to your committee by the pulp and paper men you will see that this cost of labor enters into every department of our mill, cost of plant per ton capacity, cost of cutting, logging, driving our timber, cost of mill supplies of all kinds, etc. We have been nearly twenty years building up this plant under the most adverse circumstances, and the present tariff does not represent the advantages the foreign mills have over us. If it is taken off or reduced, we believe it would mean the closing down of our plant.

We employ from 150 to 175 men, according to the season of the year, at this plant. The plant represents $755,000 invested capital, and we have quite a suburb of Northampton, Mass., dependent on us, with a fine new schoolhouse in which we are educating from 60 to 70 children, mostly of foreign parentage.

Yours, truly,

CHAS. C. SPRINGER.

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PAPER STOCK.

HON. JOHN W. WEEKS, M. C., SUBMITS LETTER OF F. W. BIRD & SON, EAST WALPOLE, MASS.

EAST WALPOLE, MASS., *December 19, 1908.*

Hon. JOHN W. WEEKS, M. C.,
Washington, D. C.

DEAR SIR: We respectfully call your attention to the indefiniteness of section 632 of the tariff act, which for a number of years has caused us annoyance and expense. This section reads as follows:

Paper stock, crude, of every description, including all grasses, fiber rags, other than wool, waste, including jute rope and waste bagging, including old gunny cloth and old gunny bags, fit only to be converted into paper.

This latter clause, "fit only to be converted into paper," is the cause of most of our troubles. We cite you the following example:

We have imported from France and Belgium, to use in making paper, a grade of flax spinning waste called "cordellettes" (little cords or little strings). In 1903 and 1904 these importations were suddenly assessed a duty of 10 per cent, which was subsequently increased to $20 per ton; all this on stock worth $30 per ton, and because, as we understand it, some men had used small quantities, not 5 per cent of importations, for some other purpose besides paper making.

We protested, and after some time the case was decided in our favor, but not until the Government had tied up many thousands of dollars belonging to us and we had been put to a legal expense of more than a thousand dollars.

We also use in the making of our roofing large quantities of old satinet garments. These are old, worn-out garments and soft rags composed of cotton and wool or cotton and shoddy. They have usually been admitted free, yet in some cases have been assessed a duty of 10 cents per pound, being classed as woolen rags, although the grade is too low to be worked up into shoddy and the stock could only be used by converting it into paper.

Although the board of appraisers have given cases of this kind their careful and impartial consideration, the wording of this section has made it impossible to give uniform decision, because the law specifies that the material must be fit only to be converted into paper, and whenever the appraisers had evidence or believed the material could be used for anything else beside paper making the duty would be assessed.

We strongly urge that the wording of section 632 be revised, or added to, so that flax waste, paper stocks, and old satinet garments containing a small percentage of wool be admitted free when they are to be used for the manufacture of paper and when the importer is willing to give oath that they are to be used exclusively for that purpose.

This we believe to be the intent of the existing law.

Yours, very truly,

F. W. BIRD & SON.

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PRINT PAPER.

THE INTERNATIONAL PAPER COMPANY, NEW YORK CITY, FILES SUPPLEMENTAL BRIEF RELATIVE TO WAGES AND COSTS.

NEW YORK, *December 19, 1908.*

Hon. SERENO E. PAYNE,
Chairman Committee on Ways and Means, Washington, D. C.

DEAR SIR: We desire to supplement the statement in regard to Schedule M, which we submitted to your committee on November 21, with additional data.

Wages.—Exhibit A, attached, is a comparison of our regular schedule of wages in force July 1, 1908, with the wages paid in the following Canadian mills:

Laurentide Paper Company (Limited), Grand Mere, Quebec.
Canada Paper Company (Limited), Windsor Mills, Quebec.
Belgo-Canadian Pulp and Paper Company, Shawinigan Falls, Quebec.
St. Raymond Paper Company (Limited), St. Raymond, Quebec.
Imperial Paper Mills of Canada (Limited), Sturgeon Falls, Ontario.
J. R. Booth, Ottawa, Ontario.

This comparison is based on a table of wages, marked "Exhibit B," which gives the wages for each position in each of the six Canadian mills given above, which are the only ones at present making news paper. This data was obtained through a labor organization whose representatives visited each mill and interviewed the various classes of employees. They are ready, if called upon, to make affidavit that the figures are correct to the best of their knowledge and belief.

A mere glance is sufficient to show a decided excess in the wages paid by this company over any of the Canadian mills. At the end of Exhibit B, however, is a statement of averages also reduced to a basis of percentages. While these averages are not mathematically strictly correct, because the wages are not weighted by the number of employees in each occupation, yet we believe that the conclusion is sound—that the disparity between our wages and Canadian wages is understated rather than overstated—for the reason that the difference in the wages paid to low-class labor (employed by the hour) is greater than the difference in the wages paid to high-class labor (employed by the week), and the low-class labor being much the more numerous the true percentage of excess wages paid by us would be greater than that shown.

It should be further stated that in comparing our schedule with each Canadian mill only the positions or wages are taken into account in our schedule which are given in the schedule of each of the Canadian mills with which comparison is made.

It will be seen that the average wages in the International Paper Company paid to those who are employed by the week exceed the corresponding average wages at each mill by the following percentages: 48.7, 36.5, 45.0, 16.6, 17.3, 26.2; and that the average hourly wages of the International Paper Company exceed the corresponding Canadian wages in each mill by the following percentages: 74.4, 58.9, 59.5, 69.4, 55.7, 55.3.

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For the sake of more readily grasping the difference as a whole, we have averaged the weekly rate for all the Canadian mills and the hourly rate as well, showing that the International Paper Company's weekly wages average 30.6 per cent more than the Canadian mills and that the International Paper Company's hourly wages average 60.5 per cent more than the Canadian mills.

Finally, we have averaged these two percentages (weighted by the number of positions) and find that the average schedule of the International Paper Company exceeds the average wages in all the Canadian mills by 57.6 per cent, which, as previously stated, is probably less than the actual true excess.

Supposing our wages, however, are only 50 per cent more than the Canadian wages, the difference in the cost of labor in a ton of paper in favor of the Canadian mill would be $2.66, as against $2.50, as stated in our memorandum submitted November 21 (top of page 1276, first print No. 12). We believe that the actual difference is not less than $3.

Cost of wood.—As nearly as we have been able to ascertain, the Canadian mills pay as follows for rough wood per cord delivered at their mills:

Laurentide Paper Company (Limited)	$6.25 to $6.75
Canada Paper Company (Limited)	6.00
Belgo-Canadian Pulp and Paper Company	6.00
St. Raymond Paper Company (Limited)	5.50
Imperial Paper Mills of Canada (Limited)	5.50 to 6.00
J. R. Booth	6.00

This confirms our statement previously made that the Canadian mills pay on an average $6 per cord.

Freight on paper.—When under examination the writer stated that the difference in freight rates to our market from our mills and from Canadian mills, respectively, did not amount to very much and was negligible compared with the difference in the cost of wood and labor.

The following table shows approximately the average rate paid by us during 1907 to reach the cities enumerated, also the minimum rate from the Canadian mill to the same points, rates being per 100 pounds on carload lots:

	International Paper Co. (average).	Canadian mill.	Advantage per ton in favor of—	
			I. P. Co.	Canadian mill.
Boston	$0.14	* $0.20	$1.20	
New York	.13	.18	1.00	
Philadelphia	.15	.19½	.90	
Baltimore	.17	.19½	.50	
Pittsburg	.12½	.17	.90	
Detroit	.15½	.15½		
Cincinnati	.15½	.15½		
Chicago	.18	.18		
Indianapolis	.17	.19	.40	
St. Louis	.21	.21½	.10	
Atlanta	.40	.42½	.50	
Memphis	.32	.30½		$0.30
New Orleans	.36	.36		
Houston	.46	.46		

* For export, 15 cents.

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We estimate that this gives us an advantage on all of our business of only about 75 cents per ton.

Exhibit C gives the rates from each of our principal news mills to the above-named cities. Exhibit D gives the rates from each of the Canadian mills to the same points.

PER CENT OF NEWS PAPER MADE BY INTERNATIONAL PAPER COMPANY.

Exhibit E is a list of the mills making news paper in the East and Exhibit F a list of those in the West, which show that the International Paper Company makes only about 44 per cent of the "news" made in the East and only 33 per cent of that made in the whole country.

PHYSICAL CONDITION OF ITS MILLS AT TIME OF ORGANIZATION OF INTERNATIONAL PAPER COMPANY.

In spite of general and specific refutations in the past, nevertheless representations have been made to your committee that the International Paper Company was composed at the time of its organization of a collection of inefficient and dilapidated plants. While we apprehend that your committee is more concerned with present conditions than those of ten years ago, we deny absolutely this claim and assert that the statements which have been presented in support of it are practically without exception exaggerated, distorted, and false.

At the time the International Paper Company was organized, while it did not take in all of the "news" mills, the properties it purchased represented the most efficient plants at that time in existence. When it is considered that the manufacture of news paper in the United States exceeded in quantity that manufactured in any other country in the world, and that the individual plants were larger and many of them better than any plants in the world, and that news paper was then sold in the United States more cheaply than in any other market, it is absurd to claim that there could be a consolidation of two-thirds or three-quarters of the existing plants without such consolidation being of a high grade of efficiency as to its physical condition.

As an illustration of the falsity of the statements recently made to you we quote the following:

An allowance of nearly $8,000,000 was made for a mill (Glens Falls), one-half of which might better be located upon Boston Common or in New York City. Five years previous the stock capital of that concern had been $300,000.

This same statement was made before the Committee on the Judiciary in its hearings on Lilley resolution, No. 243, in 1904, and a specific answer was made thereto, which is as follows:

The total capitalization of the Glens Falls Paper Mill Company issued and paid up was considerably more than $3,000,000, instead of $300,000, as stated. But the capitalization did not by any means cover the whole amount of money invested. The original Glens Falls Paper Company was organized and began business in the year 1864. It was owned and controlled by a few individuals who were directly interested in and connected with the management of the property, and who were more interested in building up a large and valuable manufacturing plant than they were in

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paying dividends. Consequently, they devoted the greater part of the earnings for many years to the enlargement and extension of the plant, the acquisition of woodlands, and other property necessary for their purposes. In this way, prior to the formation of the International Paper Company, the Glens Falls Company had acquired and built up a valuable and successful plant and property, a large part of which was provided for out of earnings for which no capitalization had ever been issued. This property included, among others, the following:

1. Paper mill at Glens Falls, making paper and ground wood pulp, with the use of its own very valuable developed water power on the Hudson River at that point.
2. Mills at Fort Edward, making paper, ground wood and sulphite pulp, with the use of its own very valuable water power on the Hudson River at that point.
3. Undeveloped water power on the Hudson River and other property above Glens Falls.
4. A great undeveloped water power with 250 feet head on the Saranac River at Cadyville.
5. 62,990 acres of woodland in the Adirondacks tributary to said mills, and also a large amount of woodland in Canada held under Canadian permits.
6. A fine water power of about 100 feet head, partly developed, on the Lamoille River, in Vermont, since utilized by the erection by the International Paper Company of a pulp mill.
7. A valuable undeveloped water power with a head of over 65 feet on the Lamoille River, in Vermont.

The plants above mentioned, purchased from the Glens Falls Company, have an aggregate capacity of over 300 tons of paper per day.

For the plants and property so purchased the International Paper Company paid, in its securities, about $6,000,000, instead of $8,000,000, as stated, and we confidently believe that the properties enumerated are worth more than the amount paid for them.

STATE OF NEW YORK,
City and County of New York, ss:

Frederick H. Parks, being duly sworn, deposes and says that he is the first vice-president of the International Paper Company; that he has read the foregoing statements, and that the allegations contained in the same are true to the best of his knowledge and belief.

FREDERICK H. PARKS.

Sworn to before me this 21st day of April, 1904.
[SEAL.]

E. W. KENNEDY,
Notary Public, Kings County.

Certificate filed in New York County.

This is but a fair sample of the misrepresentations which have been made to you. Each and every one could be as readily disproved, but we regard this matter as irrelevant, and, besides, the charges are so voluminous that we doubt whether you desire to have us reply to them in detail. We respectfully refer you for additional information upon this point, or any other which has not been covered by our statements to your committee, to the hearings before the Committee on the Judiciary above referred to, and to the hearings last spring before the Select Committee of the House of Representatives on Pulp and Paper Investigation. We believe that you will find that every unfavorable allegation which has been made in regard to this company has been conclusively disproved.

Very truly, yours.

CHESTER W. LYMAN,
Assistant to President.

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EXHIBIT A.

Weekly and hourly rates of wages, International Paper Company, compared with Canadian mills.

SUMMARY OF TOTALS.

Average weekly rate for Canadian mills	$19.28
Average weekly rate for International Paper Company	25.17
International Paper Company, per cent more	30.6
Average hourly rate for Canadian mills	.1655
Average hourly rate for International Paper Company	.2356
International Paper Company, per cent more	60.5

Nine and seven-tenths per cent of positions are weekly; 90.3 per cent are hourly.

International Paper Company more than Canadian mills for all positions, 57.6 per cent.

December 18, 1908.

EXHIBIT B.

Weekly and hourly rates of wages, International Paper Company, compared with Canadian mills.

Occupation.	Basis of rate.	International Paper Company.	Canada Paper Company.	Belgo-Canadian P. & P. Company.	Laurentide Paper Company.	St. Raymond Paper Company.	Imperial Paper Company.	J. R. Booth.
Foremen:								
Foreman grinder wood mill.	Weekly	$48.08	$15.00	$20.00	$16.20	.....	$21.00	$24.00
Night foreman grinder wood mill.	...do	21.00	12.00	14.40	16.20	.....	18.00	12.00
Foreman sulphite mill.	...do	34.61	.....	.....	19.63	.....	67.31	30.00
Night foreman sulphite mill.	...do	21.96	.....	.....	.....	.....	18.00	15.00
Foreman paper mill.	...do	48.08	57.69	.....	.....	.....	.....	42.00
Foreman paper machines.	...do	33.28	.....	.....	.....	.....	36.00	30.00
Night foreman plant.	...do	36.00	30.00	.....	.....	.....	18.00	.....
Night foreman repairs.	...do	35.00	16.50	.....	.....	.....	.....	.....
Night foreman steam.	...do	36.00	21.00	.....	.....	.....	21.00	25.00
Night foreman yard.	...do	20.00	12.00	.....	19.63	.....	13.50	12.00
Do	...do	15.50	.....	.....	12.96	.....	12.00	11.52
Wood piling:								
Head piler	Hourly	.2667	.15	.15	.13	.....	.175	.20
Wood handler	...do	.2234	.125	.13	.13	.125	.150	.15
Conveyor man	...do	.2000	.125	.13	.13	.....	.150	.15
Conveyor boy	...do	.1600	.....	.10	.10	.....	.....	.....
Scaler	...do	.2444	.....	.....	.13	.....	.250	.165
River man	...do	.3000	.....	.....	.13	.....	.....	.165
Engineers	...do	.4626	.....	.15	.15	.....	.200	.165
Teamster	...do	.1944	.125	.13	.13	.140	.....	.....
Single team	...do	.3056	.125	.....	.13	.....	.175	.142
Double team	...do	.4444	.125	.....	.13	.....	.175	.158
Water boy	...do	.1389	.....	.10	.10	.....	.....	.....
Wood handling:								
Head wood handler	...do	.3000	.150	.135	.15	.....	.175	.20
Do	...do	.2234	.125	.135	.13	.125	.150	.15
Conveyor man	...do	.2234	.125	.135	.14	.....	.150	.15
Scaler	...do	.2200	.150	.135	.15	.....	.....	.165

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Weekly and hourly rates of wages, International Paper Company, compared with Canadian mills—Continued.

Occupation.	Basis of rate.	International Paper Company.	Canada Paper Company.	Belgo-Canadian P. & P. Company.	Laurentide Paper Company.	St. Raymond Paper Company.	Imperial Paper Company.	J. R. Booth.
Wood handling—Continued.								
Liver man	Hourly	$0.2000	$0.150	.....	$0.15	.....	.....	.....
Slip man	do	.2234	.125	.....	.13	.....	.....	.....
Teamster	do	.1944	.125	$0.135	.13	.....	.....	.....
Single team	do	.3056	.125	.....	.13	.....	$0.175	$0.142
Double team	do	.4444	.125	.....	.13	.....	.175	.156
Eng neer	do	.2500	.....	.150	.15	.....	.200	.165
Wood room:								
Head preparer	do	.3100	.200	.150	.20	.....	.20	.20
Wood handler	do	.2234	125	.135	.13	$0.125	.15	.15
Conveyor man	do	.2234	.125	.135	.13	.125	.15	.15
Sawyer	do	.2505	.175	.135	.22	.15	.....	.165
Barker	do	.2234	.150	.135	.15	.1125	.165	.165
Splitter	do	.2234	.150	.135	.13	.....	.165	.165
Chipper	do	.2234	.150	.135	.13	.....	.162	.165
Chip bin	do	.2234	.125	.135	.....	.....	.....	.....
Knotter	do	.2234	.125	.135	.13	.....	.150	.....
Waste handler	do	.2234	.125	.135	.13	.....	.....	.150
Grinders:								
Head grinder man	do	.3165	.150	.180	.14	.1025	.167	.16
Grinder man	do	.2424	.125	.140	.13	.....	.125	.125
Block handler	do	.2234	.125	.135	.13	.....	.125	.125
Ground-wood screens:								
Screen man	do	.2234	.125	.135	.13	.....	.125	.125
Sliver man	do	.2234	.125	.140	.13	.....	.125	.125
Ground-wood presses:								
Head pressman	do	.2979	.150	.140	.18	.....	.146	.146
Pressman	do	.2234	.125	.115	.13	.....	.125	.125
Decker man	do	.2234	.125	.135	.14	.....	.125	.125
Acid plant:								
Sulphur burner	do	.3100	.....	.....	.15	.....	.167	.16
Acid maker	do	.3100	.....	.....	.26	.....	.208	.20
Lime slacker	do	.3100	.....	.....	.15	.....	.146	.15
Lime handler	do	.1878	.....	.....	.13	.....	.125	.15
Tower man	do	.1859	.....	.....	.....	.....	.....	.....
Digesters:								
Cook	do	.3700	.....	.....	.26	.....	.250	.25
First helper	do	.2500	.....	.....	.15	.....	.167	.17
Second helper	do	.2100	.....	.....	.13	.....	.125	.125
Blow-pit man	do	.2409	.....	.....	.14	.....	.125	.125
Sulphite screens:								
Screen man	do	.2234	.....	.....	.13	.....	.125	.125
Kollergang man	do	.2234	.....	.....	.13	.....	.125	.125
Sulphite presses:								
Head pressman	do	.3047	.....	.....	.15	.....	.188	.167
Pressman	do	.2234	.....	.....	.13	.....	.125	.125
Decker man	do	.2234	.....	.....	.....	.....	.167	.15
Beaters:								
Head beater man	do	.39	.1875	.34	a.292	.2291	.25	.25
Beater man	do	.2708	.125	.135	.15	.1458	.125	.125
Clay and size man	do	.2234	.125	.....	.13	.....	.138	.125
Paper machines:								
Machine tender	do	.50	a.50	.50	a.469	.333	.333	.333
Second hand	do	.33	a.313	a.34	a.313	.25	.25	.25
Third hand	do	.25	a.188	.225	.231	.167	.167	.167
Fourth hand	do	.2234	.165	.20	.188	.108	.146	.138
Fifth hand	do	.2234	.....	.....	.....	.....	.125	.....
Broke hustler	do	.2234	.156	.105	.13	.10	.125	.125
Finishing:								
Head finisher	do	.35	.20	.225	.18	.175	.30	.233
Roll finisher	do	.2167	.15	.175	.13	.13	.165	.167
Sheet finisher	do	.25	.125	.....	.13	.....	.....	.15
Counter man	do	.1833	.125	.....	.13	.....	.....	.15
Counter girl	do	.1200	.10	.10	.....	.....	.....	.10
Cutter man	do	.25	.125	.15	.13	.....	.....	.15
Cutter girl	do	.1278	.10	.....	.13	.....	.....	.10
Rewinder	do	.2778	.125	.20	.15	.....	.15	.15
Weigher	do	.2444	.15	.....	.14	.....	.15	.167
Marker	do	.2222	.....	.135	.13	.....	.....	.167
First baler	do	.2100	.....	.....	.13	.....	.....	.15
Baler	do	.20	.....	.....	.13	.....	.....	.....
Caser	do	.1833	.....	.....	.13	.....	.....	.....

a Maximum rate for positions.

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Weekly and hourly rates of wages, International Paper Company, compared with Canadian mills—Continued.

Occupation.	Basis of rate.	International Paper Company.	Canada Paper Company.	Belgo-Canadian P. & P. Company.	Laurentide Paper Company.	St. Raymond Paper Company.	Imperial Paper Company.	J. R. Booth.
Indoor, miscellaneous:								
Head paper loader.	Hourly	$0.3060			$0 15		$0.175	$0.167
Paper loader	do	.2055	$0.15		.13		.175	.150
Stock handler	do	.2641	.125		.13			
Weigher	do	.2234	.15		.13		.175	.167
Carman	do	.2500			.13			
Oil keeper	do	.2167			.13		.130	
Oiler	do	.2234	.15	$0.15	.13		.175	.167
Cleaner	do	.2056		.13	.13			.167
Filter man	do	.2234			.13			
Night watchman.	do	.1905	.175	.115	.13	$0.088	.154	.154
Sundry watchman.	do	.2234						
Elevator man	do	.1833						.15
Felt man	do	.2222			.13			
First core cleaner.	do	.2000			.13		.165	.167
Core cleaner	do	.1833	.125		.13		.150	.15
Samples	do	.2222			.13			.142
Stock saver	do	.2482						
First power house man.	do	.3385			.225			.25
Second power house man.	do	.2480			.225			.20
Outdoor, miscellaneous:								
Rocks	do	.2234	.125	.135	.13		.15	.15
Barn boss	do	.2063	.20		.15		.20	.20
Teamster	do	.4444	.125	.135	.13	.14		
Single team	do	.3333	.125				.175	.142
Double team	do	.4444	.125				.175	.158
First laborer	do	.2223					.15	
Laborer	do	.1833	.125				.15	.135
Gate keeper	do	.1889						
Steam plant:								
Engineer	do	.3125	.175	.15	.15	.35	.208	.167
Engine oiler	do	.27	.125		.15		.146	.139
Dynamo man	do	.34	.175		.25		.167	.208
Head fireman	do	.30	.1875	.275	.18		.188	.208
First fireman	do	.28			.15			.146
Coal fireman	do	.25	.125	.15	.15	.15	.125	.138
Wood fireman	do	.25	.125	.15	.15	.15	.125	.138
Coal handler	do	.2234	.125	.13	.13		.125	.125
Wood handler	do	.2234	.125	.13	.13		.125	.125
Ash handler	do	.2234	.125	.13	.13		.125	.125
Boiler cleaner	do	.2234		.15	.13	.15		
Repairs:								
Head machinist	do	.44	.30		.385		.45	.40
Machinist	do	.3333	.20		a.25			.25
Machinist helper.	do	.25	.15		.15		.15	.175
Head millwright.	do	.39		.20	.33		.30	.375
Millwright	do	.35	.20		.20		.20	.225
Millwright helper.	do	.2422	.15		.15		.15	.175
Carpenter	do	.3333	.20	.20	.20	.20	.25	.20
Head piper	do	.3611	.20	.275	.33		.30	.30
Piper	do	.3056	.175	.20	a.25		.175	.20
Pattern maker	do	.3056						
Blacksmith	do	.34	.185		.20	.25	.25	.25
Blacksmith helper.	do	.2222	.15		.15		.15	.15
Mason	do	.4444			.30			
Mason helper	do	.20			.13			
Painter	do	.28	.15		.15			.175
Painter helper	do	.1833			.14			.15
Roll grinder	do	.3333		.225	.20		.30	.20
Knife grinder	do	.25	.15		.15		.175	.175
Saw filer	do	.25			.30		.195	.25
Draftsman	do	.2778						
Electrician	do	.481	.25	.30	.25		.25	.30
Lead burner	do	.3333						

a Maximum rate for positions.

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Weekly and hourly rates of wages, International Paper Company, compared with Canadian mills—Continued.

Occupation.	Basis of rate.	International Paper Company.	Canada Paper Company.	Belgo-Canadian P. & P. Company.	Laurentide Paper Company.	St. Raymond Paper Company.	Imperial Paper Company.	J. R. Booth.
Repairs—Cont'd.								
Lead burner helper.	Hourly	$0.1944						
Laborer	do	.1944			$0.13		$0.15	
Office:								
First clerk	Weekly	23.08		$016.15	21.00	$019.80	18.00	$30.00
Second clerk	do	15.38		15.00	15.00		15.00	22.50
Third clerk	do	15.00					12.00	12.00
Day timekeeper.	do	15.00		16.15	12.00		18.00	
Night timekeeper.	do	15.00			12.00		18.00	
Stenographer	do	15.00		13.85	9.00		9.00	10.50
Storekeeper	do	15.00		16.15			9.00	10.50
Railroad operating:								
Engineer	Hourly	.26			.30			
Fireman	do	.19			.15			
Trainman	do	.19			.15			
First trackman	do	.21			.13			
Trackman	do	.175			.13			
Screen plates:								
Head plate cutter.	do	.3056			.30			.225
Plate cutter	do	.222			.15			.165
Piers and booms:								
Head river man	do	.3055			.18			.20
River man	do	.22			.13			.165
Core machine:								
First core maker.	do	.20		.15	.15		.175	.175
Core maker	do	.1833			.13		.150	.150
Average weekly rate.			$023.46	15.96	15.36	19.80	20.24	20.50
International Paper Co., average for comparison.			34.88	21.79	22.27	23.08	23.74	25.86
International Paper Co. (more), per cent.			48.7	36.5	45.0	16.6	17.3	26.2
Average hourly rate.			.1531	.1642	.1629	.1648	.1742	.1716
International Paper Co., average for comparison.			.2670	.2609	.2598	.2791	.2712	.2663
International Paper Co. (more), per cent.			74.4	58.9	59.5	69.4	55.7	55.3

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EXHIBIT C.

Freight rates from principal International Paper Company "news" mills to cities named.

City.	Mill No. 1, Glens Falls, N. Y.	Mill No. 2, Fort Edward, N. Y.	Mill No. 3, Corinth, N. Y.	Mill No. 4, Chisholm, Me.	Mill No. 5, Berlin, N. H.	Mill No. 6, Niagara Falls, N. Y.	Mill No. 9, Orono, Me.	Mill No. 14, Lake George, N. Y.	Mill No. 31, Watertown, N. Y.	Mill No. 24, Wilder, Vt.
Boston	15	15	15	10½	12	15	12	15	15½	12
New York	13	13	13	17	15	13	17	13	13	15
Philadelphia	15	15	15	16	17	13	16	16	17	15
Baltimore	17	17	17	18	17	13	18	17	17	17
Pittsburg	15	15	15	19	17	10	20	17	15	17
Detroit	15	15	15	16	16	10	18	15	15	15
Cincinnati	16	16	16	15½	15½	13	18	16	16	18
Chicago	18	18	18	18	18	18	18	18	18	18
Indianapolis	17	17	17	19	19	14	20	17	17	19
St. Louis	21	21	21	21	21	21	21	21	21	21
Atlanta	40	40	40	45½	42	40	46¾	45	40	40
Memphis	32	32	32	32½	35	32	34	37	32	32
New Orleans	36	36	36	37½	35	31	39	36	35	35
Houston	46	46	46	46	46	46	46	46	46	46

EXHIBIT D.

Freight rates from Canadian "news" mills to cities named.

	Laurentide Paper Co. (Ltd.).	Canada Paper Co. (Ltd.).	Belgo-Canadian Pulp and Paper Co.	St. Raymond Paper Co. (Ltd.).	Imperial Paper Mills (Ltd.).	J. R. Booth.
Boston	a 20	23	a 20	23½	20	a 20
New York	b 18	22	b 18	21½	21	a 18
Philadelphia	22	29½	22	26½	24	19½
Baltimore	22	29½	22	26½	.....	19½
Pittsburg	17	23	17	21½	27	17
Detroit	16	15½	16	20½	16	16
Cincinnati	15½	15½	15½	20	16½	15½
Chicago	18	18	18	22½	19	18
Indianapolis	19	19	19	23½	26	19
St. Louis	21½	21	21½	26	22½	21½
Atlanta	43½	.....	43½	.....	.....	42½
Memphis	35	32	35	.....	36½	30½
New Orleans	44½	44	43½	.....	44½	36
Houston	63	.....	63	.....	67	46

a Export, 15. b Export, 17½.

EXHIBIT E.

Annual product eastern "news" manufacturers.

	Tons.
1. Great Northern Paper Co	136,032
2. Berlin Mills Co	62,400
3. St. Regis Paper Co	39,000
4. Remington Martin Paper Co	19,656
5. Raymondville Paper Co	17,160
6. Finch Pruyn Co	14,040
7. W. H. Parsons & Co	43,680
8. Dalton Paper Mills	9,984
9. Gould Paper Co	15,600
10. West End Paper Co	7,800
11. Norwood Paper Co	6,240
12. Cliff Paper Co	9,360
13. Pettebone Cataract Paper Co	9,360

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	Tons.
14. Schroon River Pulp and Paper Co	6,240
15. Taggarts Paper Co	8,580
16. Aldrich Paper Co	7,800
17. Malone Paper Co	6,240
18. Champion Paper Co	7,800
19. Oswego Falls Paper Co	7,800
20. Iroquois Paper Co	6,000
21. High Falls Paper Co	7,500
22. St. Croix Paper Co	40,080
23. Brownville Paper Co	3,400
24. H. S. Garrett & Son	5,580
25. St. George Paper Co	8,680
	506,012
26. International Paper Co	404,550
	910,562

EXHIBIT F.

Annual product, western "news" manufacturers.

	Tons.
1. Kimberley Clark Company	20,200
2. Combined Locks Paper Company	21,840
3. John Edwards Manufacturing Company	12,400
4. Nekoosa Edwards Paper Company	15,600
5. Centralia Pulp and Paper Company	7,800
6. Grand Rapids Pulp and Paper Company	9,360
7. Wisconsin River Paper and Pulp Company	12,480
8. Tomahawk Pulp and Paper Company	3,740
9. Dells Paper and Pulp Company	6,240
10. Hennepin Paper Company	4,680
11. Itasca Paper Company	6,240
12. Northwest Paper Company	7,800
13. Rhinelander Paper Company	18,720
14. Menasha Paper Company	7,800
15. Flambeau Paper Company	3,120
16. W. D. Boyce Paper Company	7,800
17. Cheboygan Paper Company	18,720
18. Willamette Pulp and Paper Company	49,920
19. The Star Paper Mill Company	15,600
20. Outagamie Paper Company	5,300
21. Marinette and Menominee Paper Company	8,730
22. Alexandria Paper Company	9,360
23. Floriston Pulp and Paper Company	6,240
24. Patten Paper Company	3,120
25. Watab Paper and Pulp Company	12,480
	295,290

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PAPER MATERIALS.

GEORGE W. WHEELWRIGHT PAPER COMPANY, BOSTON, MASS., ADVOCATES REDUCTION OF DUTY ON ARTICLES USED IN PAPER MAKING.

85 MILK STREET, BOSTON, *January 4, 1909.*

To the Committee on Ways and Means of the House of Representatives:

Respectfully represents the George W. Wheelwright Paper Company of Massachusetts, manufacturers of book and card papers, that it sent representatives to the hearing before your committee on November 21, 1908, and that lack of time prevented your committee from hearing these representatives, and the said company therefore asks leave to file this short brief.

Your petitioner desires to call your attention to the fact that it, like other manufacturers, is a large consumer as well as producer. There has not been made to your committee any suggestion that the rates of duty on paper should be increased.

In the general scheme of tariff revision it seems proper that with the idea of raising revenue and reducing the artificial scale of prices the duties of many imported articles will be considerably reduced. That such a reduction would be for the benefit of the community at large, and of the manufacturers in particular, seems to have been the opinion of both political parties in the last campaign, and it seems clear that it is only by reduction that the cost of the articles consumed in paper making, for instance, can be reduced for the benefit of the consumer as well as of the manufacturer.

The experience of the past twenty years has shown that the consumer of paper has constantly benefited by the lowering of manufacturers' costs, and that the consumer has had almost the entire benefit of the savings of the manufacturers as represented in increased plants; the increased production, the essential element in the reduction of costs, being made possible only by increased facilities, requiring large investments.

As an illustration of this reduction, the price of uncalendered book paper in 1888 was 6 cents per pound and is to-day 4 cents per pound The industry seems to have reached the point that, while some further reduction in cost of production may be arrived at by improved economical methods of manufacture, the only great reduction of cost possible would be from a reduction in the price of the articles consumed in manufacture. Below is appended the table of duties upon articles consumed in paper manufacture.

Lumber, sawed boards, etc., planed on one side, $1 per thousand, and higher as further worked on, up to $2.50 per thousand. (Paper manufacturers consume large quantities of lumber in making packing cases, and a great quantity of heavy lumber is used in the construction of mills and works which have to be continually renewed.)

Steel castings, etc., section 135 of the tariff of 1897. Steel beams, 0.5 of a cent per pound. Machinery, 45 per cent ad valorem.

Coal, bituminous, $0.67 per ton.

Wire cloth: The rate of duty imposed on wire, which is 45 per cent ad valorem, and in addition thereto 1¼ cents per pound

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Felts valued at over $0.70 per pound, the duty per pound is four times the duty imposed by the Dingley bill on 1 pound of unwashed wool of the first class, that is $0.44 and 55 per cent ad valorem.

Chemicals: Alum, duty one-half cent per pound, price 1 cent delivered at our mill. Soda ash, three-eighths cent per pound, price 1.04 cents per hundred pounds delivered. Bleaching powder, one-fifth of a cent per pound, price per hundred pounds $1.35 delivered.

Colors: Prussian blue, 8 cents per pound. Ocher, one-eighth of a cent per pound. Ultramarine blue, 3¼ cents per pound. Wood pulp chemical bleached, one-fourth of a cent per pound; unbleached, one-sixth of a cent per pound. Wood pulp ground, one-twelfth of a cent per pound.

As far as your petitioner is aware, no request has been made your committee to increase the duties on any of these articles except upon colors. The manufacturers of coal-tar dyes have asked you for (*a*) the removal of the duty on all intermediate products, and (*b*) an increase from 30 per cent to 40 per cent ad valorem of the duty on aniline dyes.

These manufacturers now import intermediate products, which may have reached the seventh, eighth, or ninth stage in a scale of ten steps in the process of manufacture, the object being to get as near the finished article as possible without subjecting it to the duty of the final resulting color. The conversion of these intermediate products into aniline dyes is very slight and simple. The manufacture of coal-tar dyes in their entirety from the raw material is an industry, but the buying of intermediate products and converting them into dyes is a business but not an industry.

Your petitioner wishes to record its objection to the increase of the duty on aniline dyes.

But your petitioner, thinking it probable that your committee will determine in their revision of the tariff upon a general lowering of duties, desires to make clear to you the great benefit which would accrue to it as a manufacturer were the burden of the tariff on the above articles lightened.

Were this done, a reduction in the duties upon manufactured book paper could properly be made.

Such a reduction, particularly of the duties on coal, iron, lumber, and wood pulp, would tend to preserve the natural resources of the country, and to bring about a decided reduction in the cost of paper. (It is estimated that each ton of book paper manufactured is enhanced in cost some $3 by the duties upon the factors which go to make it.) The protection which is given to a manufacturer by cheapness of raw material and of articles consumed aids him in all his transactions, domestic and foreign, and enables him to maintain a steady production.

Particularly in regard to coal is a reduction or a taking off of the duty much to be desired; for example, your petitioner makes about 15,000 tons of paper per annum, and consumes in so doing about 15,000 tons of coal. As its mills are situated in New England, it is at a disadvantage in the matter of the price of coal over mills in any other of the paper-making States outside New England. Even if the price of the coal now consumed is not increased by the whole amount of the duty on it, it is clear that there is some enhancement

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of cost. The matter of coal prices is largely a question of freights; New England's natural coal fields are in the maritime provinces, while western parts of Canada would naturally get their coal from the United States were it not for the tariff line.

Esparto grass is a very valuable fiber for the manufacture of paper. This grass is not grown in this country in any commercial quantities, and should be put on the free list, and pulp made from this grass, which now is subject to a duty of 45 per cent, should certainly not pay a higher duty than chemically prepared wood pulp; but, as it is a pulp which can not be produced in competition with wood pulp, it would, however, be very desirable to place it on the free list. Esparto pulp is made in England to advantage, because the grass is brought back together with ores by the ships bearing coal to the ore-producing countries which also produce Esparto grass, such as Spain and Algiers.

Our commercial arrangements do not permit this interchange.

The cost of manufacturing book paper is not only increased by the above duties on the articles consumed in the process, but by the higher wages paid in this country. More than twice the daily wage is paid than in Great Britain, for instance. When these increased costs are considered, it is evident that the duty on the final product is moderate and just.

In conclusion, your petitioner would state that it recognizes the necessity of the Government raising a revenue adequate for its needs, and it feels it to be just that the paper industry should, in common with the other great industries, bear its share of the burden. It believes that the tariff should be so contrived as to cheapen the raw materials of manufacture, to conserve the natural resources of the country, and to bring about a reduction of the artificial prices of all commodities which greatly increase the cost of living and have of late years made the burden of local taxes exceedingly heavy.

Respectfully submitted.

GEO. W. WHEELWRIGHT PAPER COMPANY,
By GEO. W. WHEELWRIGHT, *President.*

PAPER STOCK.

[Paragraph 632.]

FRANK C. OVERTON, NEW YORK CITY, FILES SUPPLEMENTAL BRIEF RELATIVE TO PAPER STOCK.

41 PARK ROW, NEW YORK, *January 6, 1909.*

HON. SERENO E. PAYNE,
Chairman Committee on Ways and Means,
Washington, D. C.

DEAR SIR: On November 21, 1908, I filed before the Committee on Ways and Means, at Washington, a brief in behalf of the New York Paper Stock Dealers' Association and others affecting Schedule M, paper stock, and recommended a form which I felt would correct the existing evils. Said form, after mentioning various grades of paper stock, stipulated that there should be inserted:

Not advanced in manufacture to be used as raw material.

Upon further consideration it occurred to me that there might be room for various interpretations of the phrase: "Not advanced in

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manufacture to be used as raw material," and I took the liberty of consulting with Judge Henderson M. Somerville, of the Board of United States General Appraisers, who said that the Board of Appraisers had given this matter careful attention, and had recommended the following:

632. Paper stock, crude, of every description, including all grasses, fibers, rags (other than wool), waste, including jute waste, shavings, clippings, old paper, rope ends, waste rope, flax waste, flax thread waste, hemp waste, and linen thread waste, and waste bagging fit to be converted into paper; also old gunny cloth and old second-hand gunny bagging, whether fit for such purpose or not.

This section would be perfectly satisfactory to the New York paper stock dealers, as the elimination of the word "only" from the expression "fit only to be converted into paper" would in our opinion eliminate most of the misunderstanding which has occurred in the past; and the section referring to old gunny cloth and second-hand gunny bagging would certainly have the effect of saving annoyance to both the Government and importer. We therefore trust that Congress can see its way to adopt the section as proposed by the Board of Appraisers, and the New York Paper Stock Dealers' Association withdraw their suggestion in favor of that of the board.

We still feel, however, that the paragraph mentioned in the brief filed on November 21, as follows: "Rags or old garments composed of a mixture of cotton and wool, or cotton and shoddy, or cotton and wool, or shoddy, and suitable for and to be used for the manufacture of paper, free" is most essential as it is a grade that can not be incorporated into the other section without a conflict, and while the goods in question have been brought in here along with other old rags for paper stock, there is an element of risk in so doing, and should be eliminated.

If there will be any further public or private hearings in this matter, I would esteem it a favor if I would be advised of the time such hearings will be held.

Respectfully, yours,

FRANK C. OVERTON,
Of CASTLE, GOTTHEIL & OVERTON,
Paper Mill Supplies.

PRINT PAPER.

JOHN NORRIS, REPRESENTING AMERICAN NEWSPAPER PUBLISHERS' ASSOCIATION, FILES LETTER OF PUBLISHER OF KANSAS CITY (MO.) STAR.

904 PULITZER BUILDING,
New York, January 5, 1909.

Hon. SERENO E. PAYNE,
Chairman Committee on Ways and Means,
House of Representatives, Washington, D. C.

DEAR SIR: In the matter of pulp and paper schedule, may I submit to you the inclosed letter from W. R. Nelson, publisher of the Kansas City Star and proprietor of the Star Paper Mill, Kansas City?

Yours, truly,

JOHN NORRIS,
Chairman of Committee on Paper,
American Newspaper Publishers' Association.

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KANSAS CITY, MO., *December 29, 1908.*

Mr. JOHN NORRIS,
904 Pulitzer Building, New York City.

DEAR MR. NORRIS: The paper makers and allied interests have always been exceedingly busy with the Star's paper mill. They have called it "Nelson's white elephant," and they have had me bankrupt several times since the mill has been in operation, but they never have been quite as explicit as in the answer submitted by them to the Ways and Means Committee. The statement, "Mr. Nelson has no hesitancy in stating that his losses amount to over $600,000," has never been uttered by me. It is a deliberate falsehood.

When, in August, 1902, I decided to manufacture my own paper the white paper situation was insufferable. It was impossible for a western publisher to obtain paper except through the General Paper Company of Chicago.

On January 18, 1902, the Star closed a contract with that concern to supply us with 500 tons per month at $2.10 f. o. b. Kansas City. During the life of this contract the growth of the Star made it necessary to increase the shipments to 700 tons a month, and, although there had been a reduction of 10 cents per cwt. in the freight rates, the best price I could secure for the additional 200 tons was $2.37½. There was no apparent reason for this advance. I realized the importance to the Star to control its paper supply. I built the paper mill in Kansas City. It began operations in July, 1903. I have had no reason to regret my action. There probably has been a time when I could have purchased paper for less than it costs me to manufacture it in Kansas City, but I maintain that my average cost price since July, 1903, has been below the Kansas City quotation of the paper makers. In addition to this I have been absolutely independent of the paper trust.

It was the Star's paper mill that put a stop to the soaring price of paper in 1902 and 1903. I have always felt that in assuring my own supply of paper I rendered a distinct and valuable service to my fellow publishers. I have enjoyed the paper mill every minute since it has been built, so the paper makers need give themselves no uneasiness on my account. If their predictions come true I can see still greater comfort in store for me in the future.

In conclusion I want to say that The Star Paper Mill is in splendid physical condition; it has paid interest and all maintenance charges. It makes 50 tons a day. Twice—when we were threatened with a strike two years ago, and again in October this year, when advertising and circulation increases forced us to look for an extra supply—we purchased white paper, and in each instance had to pay a price far in excess of our cost price. You are at liberty to use this information in any way you like.

Yours, truly,

W. R. NELSON.

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EXPLANATION OF BRIEF OF INTERNATIONAL PAPER CO., SUBMITTED TO WAYS AND MEANS COMMITTEE, DECEMBER 19, 1908.

INTERNATIONAL PAPER COMPANY,
30 BROAD STREET,
New York, January 30, 1909.

Hon. JAMES R. MANN,
Chairman Select Committee, etc.,
House of Representatives, Washington, D. C.

DEAR SIR: I hand you herewith a copy of a letter to the Ways and Means Committee, which is self-explanatory.

Very truly, yours,

CHESTER W. LYMAN,
Assistant to President.

JANUARY 30, 1909.

Hon. SERENO E. PAYNE,
Chairman Ways and Means Committee,
House of Representatives, Washington, D. C.

DEAR SIR: With our supplemental brief dated December 19, 1908, we filed a comparative statement of wages paid by the International Paper Company and stated mills in Canada. The criticism has been made to us that the statement is misleading in that the wages given for the International Paper Company are not the average wages, but the highest wages paid for each position.

As a matter of fact, we did give in the table the maximum wages paid by this company for each position, but we also gave the maximum wages paid for each position in each Canadian mill where more than one rate was paid in a mill for the same kind of work, as was the case in several instances. This is shown by the index letter "a" placed before such items, and by the footnote "maximum rate for positions." It should have also been indicated that the maximum rate was given in the case of the International Paper Company. This was our intention and the omission was simply a clerical error on the part of the compiler.

We suppose that your committee is not concerned with the detail of wages paid to the employees in the several positions, but are concerned only with the general comparison of wages in the particular line of manufacture under consideration. Therefore, the filing of the exhibit was simply an incidental matter. We believe that the comparison of maximum rates represents the situation as correctly as average rates, and that the conclusions would be substantially the same.

The portion of our brief relating to wages leads up to the one conclusion that on the whole the wages we were paying on July 1, 1908, in our news mills exceeded the average Canadian wages paid for similar work by 50 per cent. This we fully believe to be a fact, basing our belief not only on the data we submitted, but on other information which we have.

We would be glad to have this explanation printed, if possible, in connection with our brief of December 19, 1908.

Very truly, yours,

CHESTER W. LYMAN,
Assistant to President.

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PULP AND PAPER INVESTIGATION HEARINGS

WAGE STATISTICS

SELECT COMMITTEE OF THE HOUSE OF REPRESENTATIVES

JAMES R. MANN, Illinois, *Chairman*

JAMES M. MILLER, Kansas
HENRY T. BANNON, Ohio
WILLIAM H. STAFFORD, Wisconsin
THETUS W. SIMS, Tennessee
WILLIAM H. RYAN, New York

NO. 40

WASHINGTON
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Prof. W. Z. Ripley

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WAGE STATISTICS.

The special committee in the schedules which were sent to the manufacturers, among other things, asked for the total cost per mill of manufacturing the product, the total amount paid for wages, and the percentage of the cost paid for labor. Some of the mills reporting furnish much of the pulp wood used by them; some of the mills produce their own pulp; some of the mills buy all their pulp; some buy all their pulp wood, so that the amount of wages reported may represent the total cost in some cases of wages from the forest to the final product and in other cases only the cost of converting the pulp into paper. The committee, however, has caused a table to be made upon the schedules returned, the correctness of which table is of course not absolute, for the reason that in different mills the figures are based upon different propositions. The following is the table:

THE TOTAL MANUFACTURING COST AND WAGES WITH PERCENTAGE WHICH WAGES BEAR TO TOTAL COST AS STATED IN 303 OF THE SCHEDULES RETURNED TO THE COMMITTEE ON PULP AND PAPER INVESTIGATION RELATIVE TO THE PRODUCTION OF VARIOUS GRADES OR KINDS OF PULP AND PAPER, THE PULP AND PULP WOOD USED BEING IN MANY CASES PURCHASED AND NO WAGES BEING SHOWN FOR THE SAME WHEN SO PURCHASED.

	Number of schedules.	Total manufacturing cost reported.	Total wages reported.	Per cent of wages shown to total cost.
News print paper	19	$10,803,460	$1,785,211	16.5
News print and manila	4	2,533,553	453,301	17.9
News print and hanging	5	1,774,195	321,901	18.1
News print and miscellaneous	9	4,900,378	721,107	18.0
Manila	21	5,037,125	780,838	15.5
Book	21	14,427,778	2,562,582	17.8
Writing	39	35,857,602	6,716,033	18.7
Fiber paper	15	8,018,219	1,700,095	21.2
Specialties	48	10,715,205	1,894,135	17.7
Miscellaneous	95	16,321,231	2,692,383	16.5
Ground wood pulp	17	1,067,400	197,340	18.5
Sulphite fiber	7	2,365,532	436,912	18.5
Ground wood pulp and sulphite fiber	1	515,009	84,995	18.5
Soda fiber	2	1,117,833	192,216	17.2
Total	303	114,564,020	20,539,049	17.9

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DEPARTMENT OF COMMERCE AND LABOR,
BUREAU OF LABOR,
Washington, February 5, 1909.

Hon. JAMES R. MANN, M. C.,
House of Representatives, Washington, D. C.

DEAR MR. MANN: I am sending you herewith a number of tables dealing with wages and wage cost in paper making, and also some wage data in newspaper offices, as per your request of last fall.

One table gives the average wages and hours per day and average wages per hour in all the occupations in paper and pulp making for the years 1900, 1905, and 1907. I have not attempted to reduce this table to anything in the way of a single average, thinking that would be misleading and believing that the information in its present shape is valuable. However, if you care to have it reduced to a general average, I will have the work done.

A second table gives rates of wages and hours or employment taken from four Canadian mills for comparison with the wage data from mills in the United States.

The capacity of the three paper mills, according to Lockwood's Directory, is over 50 per cent of the capacity of all the Canadian mills that make news-print paper. Three of these Canadian mills make both paper and ground wood pulp. One of the three makes sulphite in addition to paper and wood pulp, and the fourth company makes only sulphite at the mill from which wage data were secured. This gives us Canadian wage data from three paper mills, three ground wood-pulp mills, and two sulphite mills.

I am also forwarding some smaller tables which show the great variations not only in different mills, but even in the same mill during different years and even during different months of the same year. These tables show the labor cost of 1 ton of news-print paper in 18 American mills in 1900, 1905, and 1907; the labor cost of a ton of ground wood pulp in 20 mills for the same years, and the labor cost of a ton of sulphite fiber in 7 mills for the same years.

I also forward a table showing the variations in the number of days in operation in 18 news-print-paper mills for the same years, and a table showing the changes in speed of paper-making machinery in the same years.

I am sending some short tables showing the extreme variations in the labor cost of news-print paper, ground wood pulp, and sulphite fiber in the same mills during different months of the same year. In these tables I have selected three or four mills showing the greatest variations in order to show the wide range of costs at different periods. In this respect I think that the paper industry is noticeable. In these tables I have not given absolute figures, as in several instances it would probably identify the individual mills. The cost in January, 1907, has been taken as a basis of 100, and the other months are shown on a percentage basis. Thus, in one mill the cost between January

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and April differs as 100 and 136. In another mill the variations ranged from 100 in January to 160 in September. In another mill the difference goes from 100 in January to 193 in August. These changes are due frequently to lack of orders, to shut-downs for repairs or breakages, and in the case of ground wood pulp the variations are often due to lack of water.

I think all these tables showing the extreme variations are important as manifesting how complex a matter is being dealt with when it comes to figuring labor costs.

In order to avoid identification of mills in these tables the mills are simply given by numbers; but the numbers in the different tables do not refer in any case to the same mills. In each table the mill showing the lowest figures for 1900 is given first, and the other mills follow in order up to the one having the highest figures for the particular table. In consequence the mill which appears in one table as No. 1 or No. 2 might in another table figure as No. 6 or No. 7, or in another table as No. 4 or No. 9.

I think I ought to point out also that the figures showing wage rates in Canada and the United States are not entirely conclusive as to relative wage cost. The mill organization and the resulting efficiency of labor would be elements, and the only way to secure a thoroughly conclusive comparison would be to have the total wage payments and the total output for a year. This, of course, we did not secure from the Canadian mills. It may be that some of the figures you say you have received from the Canadian mills may throw more light on this matter.

I am also sending a table showing changes in wages of compositors and linotype operators in a large number of cities in the country for the years 1900, 1905, and 1907.

I am, sincerely, yours,

CHAS. P. NEILL, *Commissioner.*

TABLE SHOWING, BY OCCUPATIONS, AVERAGE WAGES AND HOURS OF EMPLOYMENT IN 1900, 1905, 1907, IN 18 NEWS-PRINT PAPER MILLS, 20 GROUND-WOOD PULP MILLS, AND 7 SULPHITE FIBER MILLS.

Paper-mill occupations.

BEATERS.

	1900.				1905.				1907.			
	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.
Head beater man:												
Eastern mills	64	$2 35	12 0	$0.196	50	2.71	11.6	$0.235	58	$2 56	8 0	$0.319
Western mills	6	2.25	12.0	.188	6	2.67	12.0	.223	6	2.84	12.0	.236
Beater man:												
Eastern mills	243	1.41	12 0	.113	250	1.94	11.9	.163	264	1.77	8 0	.222
Western mills	40	1.35	12.0	.113	42	1.65	12.0	.137	43	1.77	12.0	.148
Clay and size man:												
Eastern mills	4	1.50	10 0	.150	7	1.88	11.7	.164	3	1.65	9.0	.183
Western mills	2	1.88	10.0	.188	2	1.57	10.0	.157	3	1.60	10.0	.160
Noodle man:												
Eastern mills	2	3 00	12 0	.125	2	1.98	12 0	.165	3	1.82	8 0	.227
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000

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TABLE SHOWING, BY OCCUPATIONS, AVERAGE WAGES AND HOURS OF EMPLOYMENT IN 1900, 1905, 1907, IN 18 NEWS-PRINT PAPER MILLS, 20 GROUND-WOOD PULP MILLS, AND 7 SULPHITE FIBER MILLS—Continued.

Paper-mill occupations—Continued.

PAPER MACHINES.

	1900.				1905.				1907.			
	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.
Machine tender:												
Eastern mills	134	$3.17	12.0	$0.264	132	$3.65	11.8	$0.310	182	$3.57	8.0	$0.446
Western mills	16	3.25	12.0	.271	16	3.57	12.0	.298	16	3.59	12.0	.300
Back tender:												
Eastern mills	154	1.73	12.0	.144	143	2.26	11.8	.193	186	2.24	8.0	.285
Western mills	18	1.57	12.0	.131	16	2.18	12.0	.181	16	2.25	12.0	.188
Third hand:												
Eastern mills	126	1.43	12.0	.120	131	1.90	11.8	.162	174	1.79	8.0	.224
Western mills	18	1.26	12.0	.105	16	1.62	12.0	.135	16	1.64	12.0	.137
Fourth hand:												
Eastern mills	67	1.37	12.0	.112	73	1.89	11.7	.164	122	1.74	8.0	.218
Western mills	6	.83	12.0	.070	16	1.39	12.0	.116	16	1.35	12.0	.113
Fifth hand:												
Eastern mills	5	1.24	12.0	.103	0	0.00	0.0	.000	23	1.77	8.0	.222
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Broke hustler, paper:												
Eastern mills	42	1.35	11.7	.116	44	1.82	11.7	.159	55	1.72	8.0	.217
Western mills	2	1.38	12.0	.115	5	1.68	12.0	.140	4	1.80	12.0	.150

FINISHING.

Head finisher:												
Eastern mills	12	$2.35	10.0	$0.235	22	$2.52	10.0	$0.255	15	$2.48	9.2	$0.270
Western mills	2	1.80	10.0	.180	3	2.06	10.0	.206	3	2.19	10.0	.219
Roll finisher:												
Eastern mills	92	1.51	10.0	.151	84	1.66	10.0	.166	74	1.80	9.1	.200
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Sheet finisher:												
Eastern mills	18	1.35	10.0	.135	32	1.70	10.0	.170	25	1.79	9.2	.196
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Finishers:												
Eastern mills	17	1.59	10.0	.159	14	1.76	10.0	.176	8	1.76	9.0	.196
Western mills	6	1.29	10.0	.129	17	1.61	10.0	.161	14	1.74	10.0	.174
Cutter man:												
Eastern mills	21	1.47	10.0	.147	19	1.67	10.0	.167	18	1.67	9.0	.185
Western mills	4	1.63	10.0	.163	2	1.63	10.0	.163	2	1.88	10.0	.188
Cutter girl:												
Eastern mills	70	.89	10.0	.089	53	1.00	10.0	.100	38	1.10	9.1	.122
Western mills	14	.80	10.0	.080	26	.85	10.0	.085	16	.93	10.0	.093
Rewinder:												
Eastern mills	12	1.33	10.3	.124	22	1.61	10.0	.161	6	1.73	9.0	.192
Western mills	0	0.00	0.0	.000	1	1.63	10.0	.163	1	1.63	10.0	.163
Weigher:												
Eastern mills	15	1.48	11.3	.133	19	1.71	11.7	.147	13	1.93	13.6	.215
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Marker:												
Eastern mills	0	0.00	0.0	.000	0	0.00	0.0	.000	2	1.80	9.0	.200
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Core maker:												
Eastern mills	8	1.56	10.0	.156	7	1.63	10.0	.163	7	1.68	9.0	.187
Western mills	0	0.00	0.0	.000	2	1.38	10.0	.138	2	1.57	10.0	.157
Baling press:												
Eastern mills	13	1.45	10.0	.145	21	1.65	10.0	.165	9	1.75	9.0	.194
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Folders:												
Eastern mills	6	1.00	10.0	.100	0	0.00	0.0	.000	0	0.00	0.0	.000
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Frames:												
Eastern mills	1	1.38	10.0	.138	0	0.00	0.0	.000	0	0.00	0.0	.000
Western mills	3	1.18	10.0	.118	1	1.75	10.0	.175	1	2.00	10.0	.200
Counter:												
Eastern mills	7	1.07	10.0	.107	4	1.23	10.0	.123	3	1.18	9.0	.132
Western mills	2	1.00	10.0	.100	6	1.25	10.0	.125	3	1.33	10.0	.133

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TABLE SHOWING, BY OCCUPATIONS, AVERAGE WAGES AND HOURS OF EMPLOYMENT IN 1900, 1905, 1907, IN 18 NEWS-PRINT PAPER MILLS, 20 GROUND-WOOD PULP MILLS, AND 7 SULPHITE FIBER MILLS—Continued.

Occupations in ground wood pulp mills.

GRINDERS.

	1900.				1905.				1907.			
	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.
Head grinderman:												
Eastern mills	21	$1.72	12.0	$0.144	26	$2.73	11.8	$0.235	25	$1.99	8.3	$0.243
Western mills	4	1.53	12.0	.128	4	1.86	12.0	.155	6	1.95	12.0	.163
Grinderman:												
Eastern mills	171	1.49	12.2	.125	245	1.92	11.8	.163	288	1.77	8.1	.219
Western mills	27	1.37	12.0	.114	29	1.56	12.0	.130	27	1.78	12.0	.148
Block handler:												
Eastern mills	0	0.00	0.0	.000	53	2.03	12.0	.169	68	1.77	8.0	.217
Western mills	4	.75	12.0	.063	0	0.00	0.0	.000	0	0.00	0.0	.000

GROUND-WOOD SCREENS.

Head screen man:												
Eastern mills	0	$0.00	0.0	$0.000	3	$2.30	12.0	$0.192	3	$1.93	8.0	$0.241
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Screen man:												
Eastern mills	70	1.35	12.0	.118	53	1.78	11.7	.152	82	1.72	8.1	.213
Western mills	20	.85	12.0	.071	22	1.10	12.0	.092	22	1.23	12.0	.103
Sliverman:												
Eastern mills	2	1.00	12.0	.064	0	0.00	0.0	.000	6	1.79	8.0	.223
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Roll skinners:												
Eastern mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Western mills	24	.87	12.0	.073	20	1.08	12.0	.089	21	1.27	12.0	.106

GROUND WOOD PRESSES.

Head pressman:												
Eastern mills	6	$2.00	11.7	$0.171	1	$1.75	11.0	$0.159	13	$2.05	8.5	$0.246
Western mills	4	1.49	12.0	.124	4	1.63	12.0	.136	6	1.97	12.0	.164
Pressman:												
Eastern mills	93	1.39	11.9	.121	110	1.82	11.9	.152	135	1.72	8.4	.207
Western mills	6	1.25	12.0	.104	8	1.28	12.0	.107	10	1.54	12.0	.128
Decker man:												
Eastern mills	0	0.00	0.0	.000	16	1.98	12.0	.165	15	1.79	8.0	.223
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Vat man:												
Eastern mills	2	1.25	12.0	.104	2	1.74	12.0	.145	3	1.82	8.0	.227
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000

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TABLE SHOWING, BY OCCUPATIONS, AVERAGE WAGES AND HOURS OF EMPLOYMENT IN 1900, 1905, 1907, IN 18 NEWS-PRINT PAPER MILLS, 20 GROUND-WOOD PULP MILLS, AND 7 SULPHITE FIBER MILLS—Continued.

Occupations in sulphite fiber mills.

ACID PLANT.

	1900.				1905.				1907.			
	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.
Sulphur burner:												
Eastern mills	6	$1.50	12.0	$0.125	13	$1.98	11.7	$0.172	13	$1.99	8.6	$0.246
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Acid maker:												
Eastern mills	10	2.33	12.0	.194	9	2.30	11.7	.198	13	3.10	8.8	.363
Western mills	2	1.50	12.0	.125	2	1.75	12.0	.146	2	2.00	12.0	.167
Acid maker helper:												
Eastern mills	4	1.63	12.0	.136	3	2.08	12.3	.167	3	1.75	8.0	.219
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Lime slacker:												
Eastern mills	4	1.50	12.0	.126	11	1.80	11.5	.158	9	1.98	8.0	.246
Western mills	2	1.25	12.0	.104	2	1.38	12.0	.115	2	1.65	12.0	.138
Tank man:												
Eastern mills	0	0.00	0.0	.000	7	1.77	10.7	.165	0	0.00	0.0	.000
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Tower man:												
Eastern mills	2	1.38	12.0	.115	0	0.00	0.0	.000	1	1.70	9.0	.189
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000

DIGESTERS.

Head cook:												
Eastern mills	2	$3.00	12.0	$0.250	0	$0.00	0.0	$0.000	6	$2.80	8.0	$0.348
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Cook:												
Eastern mills	14	2.25	12.0	.188	15	2.87	11.9	.244	17	2.51	8.5	.302
Western mills	2	2.13	12.0	.177	2	2.13	12.0	.177	2	2.50	12.0	.208
Cook helper:												
Eastern mills	16	1.50	12.0	.125	30	1.95	12.0	.162	22	1.79	8.7	.211
Western mills	2	1.38	12.0	.115	2	1.75	12.0	.146	2	1.65	12.0	.138
Blow-pit man:												
Eastern mills	16	1.49	12.0	.124	12	2.01	12.0	.168	28	1.81	8.6	.217
Western mills	2	1.25	12.0	.104	2	1.25	12.0	.104	2	1.55	12.0	.129

SULPHITE SCREENS.

Head screen man:												
Eastern mills	2	$1.50	12.0	$0.125	2	$2.40	12.0	$0.200	6	$2.22	8.0	$0.277
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Screen man:												
Eastern mills	47	1.32	12.0	.110	36	1.70	12.0	.141	39	1.69	8.2	.207
Western mills	4	.88	12.0	.073	4	1.00	12.0	.083	4	1.30	12.0	.109

SULPHITE PRESSES.

Head pressman:												
Eastern mills	10	$2.05	12.0	$0.171	9	$2.45	11.9	$0.208	12	$2.32	8.8	$0.270
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Pressman:												
Eastern mills	39	1.45	12.0	.121	72	1.85	12.0	.154	76	1.78	8.4	.214
Western mills	2	1.38	12.0	.115	4	1.38	12.0	.115	2	1.75	12.0	.146
Deckerman:												
Eastern mills	0	0.00	0.0	.000	3	1.82	11.0	.165	0	0.00	0.0	.000
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Stock regulator:												
Eastern mills	2	1.50	12.0	.125	8	2.10	12.0	.175	15	2.01	8.0	.251
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Roll skinners:												
Eastern mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Western mills	0	0.00	0.0	.000	4	1.25	12.0	.104	4	1.50	12.0	.125

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TABLE SHOWING, BY OCCUPATIONS, AVERAGE WAGES AND HOURS OF EMPLOYMENT IN 1900, 1905, 1907, IN 18 NEWS-PRINT PAPER MILLS, 20 GROUND-WOOD PULP MILLS, AND 7 SULPHITE FIBER MILLS—Continued.

Occupations common to ground wood pulp and sulphite fiber mills.

WOOD PILING AND HANDLING.

	1900.				1905.				1907.			
	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.	Number of employees.	Average wages per day.	Average hours per day	Average wages per hour.
Head piler and handler:												
Eastern mills	4	$2.63	10.0	$0.263	5	$2.14	10.0	$0.214	8	$2.39	9.4	$0.254
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Wood handler:												
Eastern mills	143	1.36	10.0	.136	146	1.58	9.8	.160	150	1.73	9.2	.188
Western mills	49	1.30	10.0	.130	74	1.48	10.1	.147	62	1.69	10.0	.169
Conveyor man:												
Eastern mills	0	0.00	0.0	.000	6	1.46	10.0	.146	13	1.69	10.0	.169
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Scaler:												
Eastern mills	1	3.00	10.0	.300	5	3.15	10.0	.315	1	1.70	9.0	.189
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Riverman:												
Eastern mills	43	1.38	10.0	.138	21	1.57	10.0	.157	51	1.71	9.0	.191
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Teamster:												
Eastern mills	3	1.25	10.0	.125	7	1.66	10.0	.166	5	1.63	10.0	.163
Western mills	2	1.62	10.0	.162	0	0.00	0.0	.000	0	0.00	0.0	.000
Engineer:												
Eastern mills	0	0.00	0.0	.000	3	1.98	10.0	.198	1	4.63	10.0	.463
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Fireman:												
Eastern mills	2	1.50	12.0	.125	0	0.00	0.0	.000	0	0.00	0.0	.000
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000

WOOD ROOM.

Head preparer:												
Eastern mills	12	$2.09	10.7	$0.197	11	$2.19	10.4	$0.213	16	$2.34	8.8	$0.269
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Wood handler:												
Eastern mills	102	1.37	10.0	.140	41	1.96	9.7	.179	87	1.66	8.9	.189
Western mills	22	1.30	10.0	.130	27	1.46	10.0	.146	36	1.54	10.0	.155
Conveyor man:												
Eastern mills	0	0.00	0.0	.000	26	1.64	10.0	.164	13	1.63	9.0	.181
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Sawyer:												
Eastern mills	44	1.46	10.1	.145	25	1.60	10.2	.158	23	1.76	9.2	.192
Western mills	4	1.61	10.0	.161	5	1.66	10.0	.166	4	1.84	10.0	.184
Barker:												
Eastern mills	111	1.44	10.1	.143	150	1.61	10.0	.161	104	1.71	9.0	.191
Western mills	14	1.34	10.0	.134	21	1.48	10.0	.148	26	1.72	10.0	.172
Splitter:												
Eastern mills	6	1.46	10.0	.146	15	1.64	10.0	.164	17	1.74	8.7	.201
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Chipper:												
Eastern mills	10	1.49	10.4	.144	20	1.71	10.2	.168	27	1.74	8.4	.208
Western mills	1	1.50	10.0	.150	2	1.50	10.0	.150	2	1.82	10.0	.182
Chip bin:												
Eastern mills	3	1.38	10.0	.138	2	1.58	10.0	.158	3	1.77	9.0	.196
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Knotter:												
Eastern mills	1	1.50	10.0	.150	6	1.50	10.0	.150	5	1.65	9.0	.183
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Waste handler:												
Eastern mills	0	0.00	0.0	.000	2	1.58	10.0	.158	6	1.77	9.0	.197
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Crushers:												
Eastern mills	1	1.38	10.0	.138	1	1.70	10.0	.170	1	1.70	9.0	.189
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000

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TABLE SHOWING, BY OCCUPATIONS, AVERAGE WAGES AND HOURS OF EMPLOYMENT IN 1900, 1905, 1907, IN 18 NEWS-PRINT PAPER MILLS, 20 GROUND-WOOD PULP MILLS, AND 7 SULPHITE FIBER MILLS—Continued.

Occupations common to paper mills, ground-wood pulp mills, and sulphite fiber mills.

STEAM PLANT.

	1900.				1905.				1907.			
	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.
Head engineer:												
Eastern mills	10	$3.01	11.1	$0.270	12	$3.59	10.1	$0.357	5	$3.24	8.6	$0.369
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Engineer:												
Eastern mills	36	1.88	11.8	.160	45	2.24	11.5	.195	70	2.39	8.2	.287
Western mills	6	1.66	12.0	.139	6	2.26	12.0	.195	6	2.35	12.0	.199
Engine oiler:												
Eastern mills	6	1.50	12.0	.125	9	1.78	11.6	.154	12	1.77	9.5	.193
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Dynamo man:												
Eastern mills	3	2.17	10.7	.205	7	2.21	12.0	.184	8	2.66	10.6	.251
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Head fireman:												
Eastern mills	41	1.90	9.2	.166	56	2.20	10.9	.207	59	2.26	8.3	.277
Western mills	2	2.25	12.0	.188	3	2.00	8.0	.250	4	2.25	12.0	.188
Coal fireman:												
Eastern mills	96	1.77	12.0	.130	130	1.96	11.3	.176	180	1.95	8.3	.238
Western mills	4	1.50	12.0	.125	19	1.78	8.8	.206	17	1.96	12.0	.164
Wood fireman:												
Eastern mills	65	1.32	12.0	.110	19	2.07	11.9	.174	28	1.97	8.0	.246
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Coal handler:												
Eastern mills	9	1.49	11.8	.126	33	1.95	11.9	.164	54	1.78	8.0	.222
Western mills	15	1.49	12.0	.124	9	1.68	12.0	.140	8	1.79	12.0	.149
Wood handler:												
Eastern mills	4	1.44	10.0	.144	0	0.00	0.0	.000	2	1.79	8.0	.224
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Ash handler:												
Eastern mills	4	1.38	10.0	.138	31	1.99	11.2	.180	20	1.79	8.0	.223
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Boiler cleaner:												
Eastern mills	0	0.00	0.0	.000	3	2.05	11.3	.180	4	2.18	9.0	.243
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
General steam man:												
Eastern mills	0	0.00	0.0	.000	0	0.00	0.0	.000	7	2.18	8.1	.267
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000

REPAIRS.

Head machinist:												
Eastern mills	4	$4.20	10.0	$0.420	18	$3.14	10.0	$0.314	11	$2.99	9.1	$0.329
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Machinist:												
Eastern mills	39	2.42	10.0	.242	33	2.50	10.0	.250	33	2.62	9.1	.288
Western mills	6	1.79	10.0	.179	6	2.42	10.0	.242	6	2.39	10.0	.239
Machinist helper:												
Eastern mills	18	1.51	10.0	.151	8	1.65	10.0	.165	10	1.60	9.0	.178
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Head millwright:												
Eastern mills	0	0.00	0.0	.000	8	3.03	10.0	.303	7	3.21	9.3	.347
Western mills	0	0.00	0.0	.000	3	3.08	10.0	.308	3	3.55	10.0	.355
Millwright:												
Eastern mills	95	2.20	10.0	.220	118	2.43	10.0	.243	107	2.51	9.2	.274
Western mills	2	2.00	10.0	.200	3	2.42	10.0	.242	5	2.40	10.0	.240
Millwright helper:												
Eastern mills	25	1.55	10.0	.155	28	1.68	10.0	.168	29	1.95	9.0	.217
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Carpenter:												
Eastern mills	26	1.96	10.0	.196	31	2.21	10.0	.221	28	2.08	9.0	.231
Western mills	1	1.75	10.0	.175	1	1.75	10.0	.175	1	2.00	10.0	.200

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TABLE SHOWING, BY OCCUPATIONS, AVERAGE WAGES AND HOURS OF EMPLOYMENT IN 1900, 1905, 1907, IN 18 NEWS-PRINT PAPER MILLS, 20 GROUND-WOOD PULP MILLS, AND 7 SULPHITE FIBER MILLS—Continued.

Occupations common to paper mills, ground-wood pulp mills, and sulphite fiber mills—Continued.

REPAIRS—Continued.

	1900.				1905.				1907.			
	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.
Carpenter helper:												
Eastern mills	16	$1.48	10.0	$0.148	0	$0.00	0.0	$0.000	0	$0.00	0.0	$0.000
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Head piper:												
Eastern mills	7	2.89	10.0	.289	5	2.90	10.0	.290	8	2.97	9.0	.333
Western mills	1	2.26	10.0	.226	0	0.00	0.0	.000	2	2.50	10.0	.250
Piper:												
Eastern mills	18	1.92	10.0	.192	42	2.15	10.0	.215	34	2.32	9.2	.252
Western mills	1	1.38	10.0	.138	2	2.25	10.0	.225	1	1.75	10.0	.175
Piper helper:												
Eastern mills	0	0.00	0.0	.000	7	1.73	10.0	.173	0	0.00	0.0	.000
Western mills	0	0.00	0.0	.000	1	1.50	10.0	.150	0	0.00	0.0	.000
Pattern maker:												
Eastern mills	0	0.00	0.0	.000	4	2.56	10.0	.256	1	2.70	9.8	.300
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Blacksmith:												
Eastern mills	14	2.29	10.0	.229	17	2.47	10.0	.247	16	2.62	9.2	.286
Western mills	1	1.75	10.0	.175	1	2.00	10.0	.200	1	2.13	10.0	.213
Blacksmith helper:												
Eastern mills	6	1.44	10.0	.144	4	1.60	10.0	.160	6	1.87	9.0	.208
Western mills	0	0.00	0.0	.000	1	1.50	10.0	.150	1	1.63	10.0	.163
Mason:												
Eastern mills	17	3.00	10.0	.300	17	3.30	10.0	.330	10	3.81	9.1	.309
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Mason helper:												
Eastern mills	1	1.50	10.0	.150	9	1.56	10.0	.156	2	1.80	9.0	.200
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Painter:												
Eastern mills	35	1.54	10.0	.154	26	2.26	10.0	.226	9	2.25	9.2	.245
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Painter helper:												
Eastern mills	0	0.00	0.0	.000	1	1.50	10.0	.150	0	0.00	0.0	.000
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Roll grinder:												
Eastern mills	3	1.92	10.0	.192	4	2.61	10.0	.261	6	2.52	9.0	.280
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Knife grinder:												
Eastern mills	5	1.48	10.0	.148	9	1.69	10.0	.169	7	1.82	8.7	.210
Western mills	10	1.53	10.0	.153	3	1.71	10.0	.171	3	1.90	10.0	.190
Saw filer:												
Eastern mills	1	1.75	10.0	.175	2	1.98	10.0	.198	3	2.00	9.0	.223
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Stonecutter:												
Eastern mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Draftsman:												
Eastern mills	1	2.50	10.0	.250	5	2.45	10.0	.245	1	2.50	9.0	.278
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Electrician:												
Eastern mills	4	2.03	10.0	.203	2	2.63	10.0	.263	9	2.21	9.2	.239
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Lead burner:												
Eastern mills	1	2.50	10.0	.250	4	2.38	10.0	.238	4	2.20	9.3	.237
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Lead burner helper:												
Eastern mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Wirer:												
Eastern mills	1	1.75	10.0	.175	0	0.00	0.0	.000	0	0.00	0.0	.000
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000
Repair man:												
Eastern mills	7	1.96	10.1	.193	8	2.56	10.8	.238	10	2.42	8.9	.280
Western mills	0	0.00	0.0	.000	0	0.00	0.0	.000	0	0.00	0.0	.000

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TABLE SHOWING, BY OCCUPATION, AVERAGE WAGES AND HOURS OF EMPLOYMENT IN 1900, 1905, 1907, IN 18 NEWS-PRINT PAPER MILLS, 20 GROUND-WOOD PULP MILLS, AND 7 SULPHITE FIBER MILLS—Continued.

Occupations common to paper mills, ground-wood pulp mills, and sulphite fiber mills—Continued.

MISCELLANEOUS.

	1900.				1905.				1907.			
	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.	Number of employees.	Average wages per day.	Average hours per day.	Average wages per hour.
Indoor miscellaneous:												
Eastern mills	345	$1.43	10.7	$0.140	380	$1.55	11.3	$0.143	472	$1.73	8.7	$0.200
Western mills	32	1.34	11.0	.123	38	1.45	10.9	.135	34	1.56	11.0	.145
Outdoor miscellaneous:												
Eastern mills	305	1.40	10.0	.139	257	1.51	10.0	.151	351	1.64	9.1	.182
Western mills	24	1.24	10.3	.122	32	1.51	10.0	.151	42	1.70	10.0	.170
Office:												
Eastern mills	62	2.03	9.9	.203	54	2.19	10.0	.222	60	2.39	9.1	.263
Western mills	1	2.58	10.0	.258	1	3.47	10.0	.347	2	3.07	10.0	.307

NOTE.—Wage data having been secured from the same mills giving labor cost (see pp. 2697 and 2702), the mills included are divided as follows: News-print paper mills, 15 in the East and 3 in the West; ground-wood-pulp mills, 17 in the East and 3 in the West; sulphite fiber mills, 6 in the East and 1 in the West. Owing to different organization and management, occupations that are found in some mills are not found in others.

Rates of wages and hours of employment in 1907 in news-print paper mills (18 mills in United States and 3 mills in Canada); in ground-wood pulp mills (20 mills in United States and 3 mills in Canada); in sulphite fiber mills (7 mills in United States and 2 mills in Canada).

PAPER-MILL OCCUPATIONS.

	Canada.				United States.			
	Number of mills.	Number of employees.	Wages per day.	Hours per day.	Number of mills.	Number of employees.	Wages per day.	Hours per day.
Beaters.								
Head beater man	3	1	$3.50	8	18	3	$3.12	8
	.....	2	3.00	12	.....	3	3.00	8
	.....	1	2.76	8	.....	1	3.00	9
	.....	1	2.50	8	.....	2	3.00	12
	.....	3	2.46	8	.....	2	2.76	12
	.....	.....	.....	.....	.....	3	2.75	8
	.....	.....	.....	.....	.....	2	2.75	12
	.....	.....	.....	.....	.....	12	2.71	8
	.....	.....	.....	.....	.....	3	2.64	8
	.....	.....	.....	.....	.....	3	2.50	8
	.....	.....	.....	.....	.....	9	2.49	8
	.....	.....	.....	.....	.....	6	2.44	8
	.....	.....	.....	.....	.....	6	2.34	8
	.....	.....	.....	.....	.....	3	2.31	8
	.....	.....	.....	.....	.....	3	2.25	8
	.....	.....	.....	.....	.....	3	2.00	8
Beater man	3	16	1.75	12	18	3	2.17	8
	.....	10	1.50	12	.....	10	1.84	8
	.....	9	1.14	8	.....	9	1.82	8
	.....	22	1.04	8	.....	23	1.80	12
	.....	.....	.....	.....	.....	204	1.79	8
	.....	.....	.....	.....	.....	20	1.74	12
	.....	.....	.....	.....	.....	9	1.68	8
	.....	.....	.....	.....	.....	14	1.62	8
	.....	.....	.....	.....	.....	6	1.58	8
	.....	.....	.....	.....	.....	9	1.50	8

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Rates of wages and hours of employment in 1907 in news-print paper mills (18 mills in United States and 3 mills in Canada); in ground-wood pulp mills (20 mills in United States and 3 mills in Canada); in sulphite fiber mills (7 mills in United States and 2 mills in Canada)—Continued.

PAPER-MILL OCCUPATIONS—Continued.

	Canada.				United States.			
	Number of mills.	Number of employees.	Wages per day.	Hours per day.	Number of mills.	Number of employees.	Wages per day.	Hours per day.
Beaters—Continued.								
Clay and size man	1	2	$1.75	12	6	1	$1.80	10
						3	1.65	9
						2	1.50	10
Paper machines.								
Machine tenders	3	7	4.25	12	18	14	4.00	8
		6	4.00	8		4	3.84	12
		6	3.75	8		54	3.76	8
		6	3.52	8		6	3.75	8
						4	3.75	12
						63	3.52	8
						4	3.48	12
						6	3.32	8
						33	3.28	8
						6	3.00	8
						4	3.00	12
Back tenders	3	7	3.00	12	18	6	2.92	8
		18	2.50	8		15	2.64	8
		6	2.46	8		4	2.52	12
						6	2.50	8
						1	2.50	11
						30	2.40	8
						4	2.40	12
						1	2.30	8
						52	2.25	8
						3	2.24	8
						13	2.17	8
						9	2.16	8
						4	2.16	12
						5	2.06	8
						6	2.04	8
						38	2.00	8
						4	1.92	12
						1	1.62	8
Third hands	3	7	2.00	12	18	14	2.00	8
		18	1.80	8		6	1.90	8
		6	1.75	8		6	1.82	8
						4	1.80	12
						113	1.79	8
						7	1.76	8
						12	1.75	8
						4	1.75	12
						16	1.62	8
						4	1.62	12
						4	1.38	12
Fourth hands	3	7	1.75	12	13	92	1.79	8
		6	1.50	8		6	1.64	8
		18	1.46	8		18	1.62	8
						6	1.50	8
						4	1.50	12
						4	1.38	12
						4	1.32	12
						4	1.20	12
Fifth hand					4	20	1.79	8
						3	1.62	8
Broke hustler	1	[a]4	.96	8	9	4	1.80	12
						37	1.79	8
						12	1.62	8
						6	1.50	8
Finishing.								
Head finisher	2	1	2.20	10	17	1	3.15	9
		1	2.00	10		1	2.79	9
						1	2.75	9
						2	2.52	9
						4	2.50	9
						1	2.50	10

[a] Boys.

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Rates of wages and hours of employment in 1907 in news-print paper mills (18 mills in United States and 3 mills in Canada); in ground-wood pulp mills (20 mills in United States and 3 mills in Canada); in sulphite fiber mills (7 mills in United States and 2 mills in Canada)—Continued.

PAPER-MILL OCCUPATIONS—Continued.

	Canada.				United States.			
	Number of mills.	Number of employees.	Wages per day.	Hours per day	Number of mills.	Number of employees.	Wages per day.	Hours per day.
***Finishing*—Continued.**								
Head finisher						1	$2.31	10
						2	2.25	9
						2	2.25	10
						1	2.22	10
						1	2.00	10
						1	1.98	9
Finisher	3	1	$2.00	10	18	1	2.25	9
		6	1.75	10		7	2.00	9
		6	1.70	10		2	2.00	11
		4	1.65	10		1	1.95	9
	3	4	1.60	10		1	1.90	9
		2	1.54	10		75	1.80	9
		4	1.40	10		4	1.80	10
						2	1.79	9
						7	1.75	10
						2	1.73	9
						11	1.65	9
						5	1.65	10
						3	1.63	10
Counter	2	1	1.33	10	4	1	1.50	10
		1	1.25	10		1	1.25	9
		1	1.20	10		2	1.25	10
						2	1.15	9
Cutter man	1	1	2.50	10	7	2	2.00	9
		2	1.50	10		1	2.00	10
						1	1.95	9
						1	1.80	9
						1	1.75	10
						12	1.65	9
						1	1.35	9
						1	1.15	9
Cutter girl	3	1	1.34	10	12	28	1.15	9
		1	1.25	10		5	1.10	9
		1	1.20	10		10	1.00	10
		1	1.00	10		5	.83	9
		2	.83	10		6	.80	10
Rewinder	2	1	1.25	10	5	1	2.00	9
		2	1.00	10		1	1.75	9
						4	1.65	9
						1	1.63	9
Weigher	2	1	2.00	10	7	3	2.20	9
		1	1.70	10		7	2.00	9
		1	1.54	10		1	1.70	9
		1	1.50	10		2	1.65	9
Core maker	3	1	2.10	10	5	1	1.80	9
		4	1.87	10		1	1.71	9
		2	1.54	10		5	1.65	9
		2	1.50	10		1	1.63	10
		2	1.43	10		1	1.50	10
		2	1.30	10				
Baling press	1	1	1.43	10	1	1	2.00	9
						3	1.80	9
						1	1.75	9
						4	1.65	9

OCCUPATIONS IN GROUND-WOOD PULP MILLS.

Grinders.								
Head grinder man	2	2	$2.56	12	12	3	$2.53	8
		2	2.50	12		2	2.16	12
						3	2.11	8
						1	2.01	9
						4	2.00	8
						1	2.00	1
						2	1.90	12

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Rates of wages and hours of employment in 1907 in news-print paper mills (18 mills in United States and 3 mills in Canada); in ground-wood pulp mills (20 mills in United States and 3 mills in Canada); in sulphite fiber mills (7 mills in United States and 2 mills in Canada)—Continued.

OCCUPATIONS IN GROUND-WOOD PULP MILLS—Continued.

	Canada.				United States.			
	Number of mills.	Number of employees.	Wages per day.	Hours per day.	Number of mills.	Number of employees.	Wages per day.	Hours per day.
***Finishing*—Continued.**								
Baling press						9	$1.84	8
						2	1.83	10
						2	1.80	12
						2	1.79	8
Grinder man	3	2	$2.40	12	20	6	2.00	8
		2	2.28	12		2	1.95	8
		9	2.04	12		30	1.90	8
		7	1.92	12		1	1.85	8
		8	1.80	12		4	1.83	12
		14	1.75	12		12	1.82	8
		22	1.80	12		17	1.80	12
						164	1.79	8
						10	1.74	12
						11	1.68	8
						4	1.65	11½
						6	1.64	8
						24	1.62	8
						24	1.60	8
Block handlers	2	4	2.04	12	10	57	1.79	8
		2	1.92	12		10	1.65	9
		28	1.80	12		1	1.62	8
		6	1.25	12				
Ground-wood screens.								
Head screen man	1	2	2.64	12	1	3	1.93	8
Screen man	3	1	2.16	12	19	3	2.00	8
		2	1.92	12		3	1.82	8
		2	1.80	12		44	1.79	8
		4	1.75	12		3	1.68	8
		4	1.68	12		2	1.68	12
		6	1.25	12		2	1.65	11½
						6	1.62	8
						18	1.60	8
						6	1.50	12
						3	1.30	8
						8	1.20	12
						6	1.14	12
Ground-wood presses.								
Head pressman	1	2	2.00	12	8	4	2.38	8
						2	2.25	12
						3	2.00	8
						1	2.00	11
						3	1.93	8
						2	1.86	12
						2	1.80	12
						1	1.79	8
						1	1.60	12
Pressman	3	1	2.16	12	16	3	2.00	8
		1	1.92	12		2	1.86	12
		2	1.80	12		3	1.82	8
		10	1.75	12		73	1.79	8
		4	1.68	12		1	1.75	12
		24	1.20	12		6	1.65	11½
						10	1.62	8
						30	1.60	8
						8	1.60	12
						2	1.56	12
						2	1.50	8
						1	1.50	12
						4	1.32	12

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Rates of wages and hours of employment in 1907 in news-print paper mills (18 mills in United States and 3 mills in Canada); in ground-wood pulp mills (20 mills in United States and 3 mills in Canada); in sulphite fiber mills (7 mills in United States and 2 mills in Canada)—Continued.

OCCUPATIONS IN SULPHITE FIBER MILLS.

	Canada.				United States.			
	Number of mills.	Number of employees.	Wages per day.	Hours per day.	Number of mills.	Number of employees.	Wages per day.	Hours per day.
Acid plant.								
Acid maker	2	2	$3.00	12	6	3	$2.72	8
		1	2.94	12		2	2.50	12
		2	2.20	12		3	2.45	8
						3	2.25	8
						2	2.00	12
						2	1.85	9
Acid maker helper	2	1	1.86	12	7	3	2.48	8
		2	1.80	12		3	2.04	8
		4	1.62	12		6	2.00	8
		2	1.56	12		3	1.90	8
						5	1.79	8
						3	1.75	8
						2	1.75	12
						2	1.65	12
Tower man	1	1	1.75	10	1	1	1.70	9
		3	1.50	10				
Digesters.								
Head cook	1	2	5.40	12	2	3	2.93	8
						3	2.64	8
Cook	2	4	3.00	12	7	3	3.50	8
						3	2.50	8
						4	2.50	8
						3	2.48	8
						3	2.17	8
						3	1.93	8
Cook helper	2	4	1.86	12	7	2	2.00	8
						1	1.92	8
		4	1.80	12		9	1.79	8
		[a] 2	1.00	10		3	1.75	8
						2	1.65	12
						2	1.63	12
						2	1.50	12
Blow pitman	1	2	1.74	12	7	3	2.24	8
		1	1.62	12		3	1.92	8
						3	1.80	8
						12	1.79	8
						3	1.75	8
						1	1.60	12
						5	1.50	12
Sulphite screens.								
Head screenman	1	2	2.04	12	2	3	2.44	8
						3	2.00	8
Screenman	2	1	1.80	12	7	15	1.79	8
		10	1.74	12		15	1.65	8
		1	1.56	12		7	1.60	8
		1	1.44	12		2	1.50	12
		4	1.40	12		2	1.35	12
						2	1.25	12
Sulphite presses.								
Head pressman	1	2	2.28	12	5	1	3.48	8
		2	1.80	12		3	2.25	8
						2	2.25	12
						3	2.20	8
						3	2.17	8
Pressman	2	2	1.80	12	7	6	1.90	8
		10	1.74	12		21	1.80	8
		1	1.56	12		32	1.79	8
		1	1.44	12		9	1.75	8
		8	1.40	12		2	1.75	12
						8	1.50	12

[a] Boys.

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Rates of wages and hours of employment in 1907 in news-print paper mills (18 mills in United States and 3 mills in Canada); in ground-wood pulp mills (20 mills in United States and 3 mills in Canada); in sulphite fiber mills (7 mills in United States and 2 mills in Canada)—Continued.

OCCUPATIONS COMMON TO GROUND-WOOD PULP AND SULPHITE FIBER MILLS.

	Canada.				United States.			
	Number of mills.	Number of employees.	Wages per day.	Hours per day.	Number of mills.	Number of employees.	Wages per day.	Hours per day.
Wood piling and handling.								
Head wood handler	2	1	$2.00	10	7	1	$5.12	10
		2	1.65	11		1	2.50	10
						2	2.00	9
						1	2.00	10
						1	1.90	10
						1	1.85	9
						1	1.75	9
Wood handlers	3	1	1.98	11	16	2	2.23	10
		1	1.87	11		11	2.01	10
		15	1.70	10		1	2.00	10
						2	2.00	10
		33	1.65	11		1	1.91	10
		21	1.54	11		16	1.83	9
		17	1.50	10		20	1.83	10
		11	1.43	11		2	1.75	9
		12	1.38	11		14	1.75	10
		2	1.32	11		20	1.70	10
						88	1.65	9
						12	1.65	10
						1	1.63	10
						13	1.60	10
						5	1.50	9
						3	1.50	10
						1	1.00	10
River man	1	15	1.25	10	2	23	1.60	9
						8	1.50	10
	1	15	1.25	10	5	1	3.00	10
						1	2.25	10
						1	2.00	9
						2	1.94	10
						1	1.80	9
						12	1.79	8
						1	1.75	9
						1	1.65	9
						23	1.60	9
Teamsters	4	3	2.00	10	3	2	1.83	10
		3	1.75	10		3	1.50	10
		1	1.54	11				
		10	1.25	10				
Wood room.								
Head preparer	3	1	3.60	11	11	1	3.50	10
		1	2.42	11		3	2.75	8
		1	2.00	10		2	2.50	9
		2	1.96	11		3	2.25	8
						2	2.25	9
						1	2.12	9
						1	2.00	9
						1	1.90	9
						1	1.80	9
						1	1.75	10
Wood handlers	3	7	1.65	11	16	6	2.01	9
		5	1.60	10		5	1.83	9
		7	1.54	11		12	1.79	8
		4	1.50	10		1	1.70	9
		4	1.38	11		43	1.65	9
		12	1.35	10		20	1.63	10
		2	1.25	10		2	1.60	10
						6	1.50	8
						4	1.50	9
						21	1.50	10
						3	1.20	10
Conveyor man	2	2	1.54	11	6	1	1.75	9
		1	1.50	10		2	1.70	9
		1	1.35	10		8	1.65	9
						2	1.40	9
Sawyer	3	1	2.42	11	16	1	2.50	9
		1	2.25	10		1	2.25	10

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Rates of wages and hours of employment in 1907 in news-print paper mills (18 mills in United States and 3 mills in Canada); in ground-wood pulp mills (20 mills in United States and 3 mills in Canada); in sulphite fiber mills (7 mills in United States and 2 mills in Canada)—Continued.

OCCUPATIONS COMMON TO GROUND-WOOD PULP AND SULPHITE FIBER MILLS—Continued.

	Canada.				United States.			
	Number of mills.	Number of employees.	Wages per day.	Hours per day.	Number of mills.	Number of employees.	Wages per day.	Hours per day.
Wood room—Continued.								
Sawyer		1	$1.98	11		1	$2.04	9
		2	1.75	10		2	2.03	9
		1	1.70	10		2	2.01	9
						1	2.00	10
						2	1.80	9
						2	1.80	10
						2	1.75	10
						2	1.70	9
						1	1.65	9
						3	1.60	8
						2	1.60	10
						1	1.50	9
						4	1.50	10
Barker	3	6	1.75	10	18	9	2.01	9
		25	1.65	11		11	1.83	9
		22	1.54	11		18	1.79	8
		14	1.35	10		4	1.75	9
						10	1.75	10
						10	1.70	9
						16	1.70	10
						32	1.65	9
						5	1.60	10
						1	1.50	9
						14	1.50	10
Splitter	2	6	1.65	11	9	2	2.01	9
		1	1.35	10		6	1.79	8
						1	1.70	9
						7	1.65	9
						1	1.60	10
Chipper	2	14	1.65	11	7	1	1.88	10
		5	1.54	11		15	1.79	8
						3	1.75	10
						2	1.70	9
						3	1.65	8
						5	1.65	9

OCCUPATIONS COMMON TO PAPER MILLS, GROUND-WOOD PULP MILLS, AND SULPHITE FIBER MILLS.

Indoor miscellaneous.								
Head paper loader	1	1	$2.00	10	8	1	$2.50	9
						1	2.25	9
						3	2.20	9
						2	2.00	9
						1	1.87	9
Paper loader	3	6	1.60	10	15	1	2.25	9
		3	1.50	10		41	1.80	9
		12	1.43	10		4	1.75	10
		5	1.30	10		4	1.71	9
						8	1.70	10
						20	1.65	9
						2	1.60	10
						8	1.50	9
						8	1.50	10
Head pulp shipper	1	1	2.70	10	1	1	2.00	10
Pulp shipper	1	7	1.35	10	1	6	1.50	10
Weigher	1	4	1.40	10	8	3	2.40	8
						9	1.79	8
						3	1.79	9
						1	1.75	8
						1	1.75	10
						3	1.65	8
						1	1.65	9
						2	1.60	8

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Rates of wages and hours of employment in 1907 in news-print paper mills (18 mills in United States and 3 mills in Canada); in ground-wood pulp mills (20 mills in United States and 3 mills in Canada); in sulphite fiber mills (7 mills in United States and 2 mills in Canada)—Continued.

OCCUPATIONS COMMON TO PAPER MILLS, GROUND-WOOD PULP MILLS, AND SULPHITE FIBER MILLS—Continued.

	Canada.				United States.			
	Number of mills.	Number of employees.	Wages per day.	Hours per day.	Number of mills.	Number of employees.	Wages per day.	Hours per day.
Indoor miscellaneous—Cont'd.								
Oiler	3	1	$2.16	12	14	1	$2.25	9
		6	1.98	12		6	2.00	8
		4	1.50	12		1	2.00	9
		2	1.40	12		1	1.87	9
		1	1.25	10		3	1.82	8
						2	1.80	12
						22	1.79	8
						2	1.75	9
						2	1.75	12
						1	1.75	13
						2	1.70	9
						2	1.65	9
						2	1.63	10
						3	1.50	8
						1	1.50	9
						2	1.44	12
						4	1.20	12
						4	1.08	12
Cleaner	3	1	2.20	10	14	1	2.27	12
		1	1.60	10		1	2.01	9
		3	1.50	10		1	2.00	10
		10	1.40	10		1	1.85	9
		4	1.38	11		1	1.70	9
		2	1.30	10		1	1.67	10
		2	1.20	10		26	1.65	9
						1	1.53	9
						8	1.50	8
						2	1.50	10
						1	1.35	9
						2	1.25	9
						1	.67	9
Filter man	1	2	1.80	12	2	3	2.00	8
						3	1.79	8
Watchman	3	1	2.00	13	16	2	2.48	12
		1	1.63	13		1	2.47	13
		1	1.54	11		1	2.46	11
		1	1.50	11		2	2.29	12
		1	1.34	13		5	2.28	12
						2	2.17	13
						1	2.16	12
						1	2.00	12
						2	2.00	13
						1	1.50	12
						2	1.50	13
Felt man	1	1	1.35	10	4	1	2.00	9
						3	1.65	9
Outdoor miscellaneous.								
Racks	1	1	1.35	10	9	40	1.79	8
						3	1.71	8
						4	1.65	9
						1	1.53	9
Barn boss	2	1	1.75	10	2	1	2.29	11
		1	1.25	10		1	2.00	10
Teamster	2	12	1.47	10½	14	1	1.94	10
		2	1.35	10		1	1.92	10
						10	1.83	10
						1	1.75	10
						2	1.67	10
						14	1.65	9
						1	1.60	10
						1	1.33	10
						2	1.25	9
						1	1.00	9

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Rates of wages and hours of employment in 1907 in news-print paper mills (18 mills in United States and 3 mills in Canada); in ground-wood pulp mills (20 mills in United States and 3 mills in Canada); in sulphite fiber mills (7 mills in United States and 2 mills in Canada)—Continued.

OCCUPATIONS COMMON TO PAPER MILLS, GROUND-WOOD PULP MILLS, AND SULPHITE FIBER MILLS—Continued.

	Canada.				United States.			
	Number of mills.	Number of employees.	Wages per day.	Hours per day.	Number of mills.	Number of employees.	Wages per day.	Hours per day.
Outdoor miscellaneous—Cont'd.								
Laborer	3	5	1.40	10	15	1	2.01	9
	.....	10	1.35	10	.....	1	2.00	9
	.....	13	1.30	10	.....	1	1.75	9
	.....	14	1.25	10	.....	40	1.70	10
	.....	.....	.....	.....	.....	155	1.65	9
	.....	.....	.....	.....	.....	21	1.60	9
	.....	.....	.....	.....	.....	14	1.50	10
	.....	.....	.....	.....	.....	3	1.28	8
Steam plant.								
Engineers	3	2	2.54	12	17	4	3.36	12
	.....	5	2.00	12	.....	6	3.00	8
	.....	2	1.75	12	.....	1	2.97	11
	.....	.....	.....	.....	.....	1	2.88	11
	.....	.....	.....	.....	.....	3	2.72	8
	.....	.....	.....	.....	.....	1	2.70	9
	.....	.....	.....	.....	.....	4	2.64	8
	.....	.....	.....	.....	.....	3	2.50	8
	.....	.....	.....	.....	.....	3	2.48	8
	.....	.....	.....	.....	.....	10	2.40	8
	.....	.....	.....	.....	.....	3	2.25	8
	.....	.....	.....	.....	.....	1	2.25	13
	.....	.....	.....	.....	.....	3	2.24	8
	.....	.....	.....	.....	.....	3	2.17	8
	.....	.....	.....	.....	.....	15	2.16	8
	.....	.....	.....	.....	.....	2	2.04	12
	.....	.....	.....	.....	.....	4	2.00	8
	.....	.....	.....	.....	.....	4	2.00	10
	.....	.....	.....	.....	.....	3	1.95	8
	.....	.....	.....	.....	.....	1	1.92	13
	.....	.....	.....	.....	.....	1	1.50	10
Dynamo man	1	1	2.90	10	3	4	3.24	12
	.....	1	2.26	10	.....	1	2.34	13
	.....	1	2.20	10	.....	3	2.00	8
Head fireman	3	1	2.28	12	16	3	2.48	8
	.....	2	2.25	12	.....	18	2.40	8
	.....	2	2.00	12	.....	3	2.26	8
	.....	.....	.....	.....	.....	3	2.25	8
	.....	.....	.....	.....	.....	4	2.25	12
	.....	.....	.....	.....	.....	24	2.24	8
	.....	.....	.....	.....	.....	1	2.20	8
	.....	.....	.....	.....	.....	3	2.00	8
	.....	.....	.....	.....	.....	4	1.75	12
Fireman	4	6	1.98	12	19	2	3.00	12
	.....	8	1.92	12	.....	1	2.25	9
	.....	23	1.80	12	.....	.....	.....	.....
	.....	12	1.75	12	.....	1	2.04	9
	.....	4	1.68	12	.....	167	2.00	8
	.....	8	1.60	12	.....	9	2.00	12
	.....	2	1.50	12	.....	8	1.92	12
	.....	.....	.....	.....	.....	6	1.84	8
	.....	.....	.....	.....	.....	1	1.82	13
	.....	.....	.....	.....	.....	12	1.76	8
	.....	.....	.....	.....	.....	6	1.75	8
	.....	.....	.....	.....	.....	12	1.50	12
Coal handler	2	21	1.56	12	11	6	1.80	12
	.....	4	1.40	12	.....	52	1.79	8
	.....	.....	.....	.....	.....	2	1.75	12
	.....	.....	.....	.....	.....	1	1.65	8
	.....	.....	.....	.....	.....	1	1.65	9
Ash handler	2	4	1.92	12	5	1	2.25	9
	.....	2	1.80	12	.....	19	1.79	8

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Rates of wages and hours of employment in 1907 in news-print paper mills (18 mills in United States and 3 mills in Canada); in ground-wood pulp mills (20 mills in United States and 3 mills in Canada); in sulphite fiber mills (7 mills in United States and 2 mills in Canada)—Continued.

OCCUPATIONS COMMON TO PAPER MILLS, GROUND-WOOD PULP MILLS, AND SULPHITE FIBER MILLS—Continued.

	Canada.				United States.			
	Number of mills.	Number of employees.	Wages per day.	Hours per day.	Number of mills.	Number of employees.	Wages per day.	Hours per day.
Repairs.								
Head machinist	3	1	4.23	10	9	1	3.96	9
	.....	1	4.00	10	.....	1	3.51	9
	.....	1	3.00	10	.....	1	3.25	9
	.....	.....	.....	.....	.....	1	3.00	9
	.....	.....	.....	.....	.....	1	3.00	10
	.....	.....	.....	.....	.....	1	2.86	9
	.....	.....	.....	.....	.....	2	2.79	9
	.....	.....	.....	.....	.....	1	2.70	9
	.....	.....	.....	.....	.....	2	2.50	9
Machinist	4	1	2.75	10	17	1	3.25	10
	.....	1	2.70	10	.....	4	3.00	9
	.....	17	2.50	10	.....	3	3.00	10
	.....	3	2.25	10	.....	3	2.90	9
	.....	1	2.10	10	.....	6	2.80	9
	.....	6	2.00	10	.....	2	2.75	9
	.....	.....	.....	.....	.....	1	2.75	10
	.....	.....	.....	.....	.....	1	2.70	9
	.....	.....	.....	.....	.....	1	2.61	9
	.....	.....	.....	.....	.....	1	2.55	9
	.....	.....	.....	.....	.....	3	2.43	9
	.....	.....	.....	.....	.....	1	2.35	9
	.....	.....	.....	.....	.....	2	2.30	9
	.....	.....	.....	.....	.....	2	2.25	9
	.....	.....	.....	.....	.....	1	2.25	10
	.....	.....	.....	.....	.....	2	2.20	9
	.....	.....	.....	.....	.....	1	2.13	10
	.....	.....	.....	.....	.....	1	2.00	9
	.....	.....	.....	.....	.....	1	2.00	10
	.....	.....	.....	.....	.....	1	1.75	9
	.....	.....	.....	.....	.....	1	1.70	10
Machinist helper	3	1	2.00	10	6	1	2.05	9
	.....	2	1.75	10	.....	1	2.00	9
	.....	3	1.40	10	.....	1	1.98	9
	.....	2	1.30	10	.....	1	1.85	9
	.....	1	1.25	10	.....	1	1.80	9
	.....	1	1.20	10	.....	1	1.65	9
	.....	.....	.....	.....	.....	2	1.35	9
	.....	.....	.....	.....	.....	2	1.00	9
Head millwright	4	1	4.20	10	8	2	3.83	10
	.....	1	4.00	10	.....	1	3.51	9
	.....	1	3.00	10	.....	1	3.50	9
	.....	.....	.....	.....	.....	1	3.25	10
	.....	1	2.50	10	.....	1	3.15	9
	.....	.....	.....	.....	.....	2	3.00	9
	.....	.....	.....	.....	.....	1	3.00	10
	.....	.....	.....	.....	.....	1	2.91	9
Millwright	4	1	2.75	10	18	1	3.42	9
	.....	2	2.50	10	.....	2	3.25	9
	.....	1	2.40	10	.....	1	3.15	9
	.....	2	2.35	10	.....	3	3.00	9
	.....	2	2.25	10	.....	2	3.00	10
	.....	11	2.14	10	.....	10	2.75	9
	.....	.....	.....	.....	.....	8	2.75	10
	.....	3	2.10	10	.....	8	2.70	9
	.....	.....	.....	.....	.....	11	2.69	10
	.....	7	2.00	10	.....	1	2.61	9
	.....	.....	.....	.....	.....	6	2.55	9
	.....	.....	.....	.....	.....	1	2.52	9
	.....	.....	.....	.....	.....	8	2.52	10
	.....	.....	.....	.....	.....	7	2.50	9
	.....	.....	.....	.....	.....	1	2.50	10
	.....	.....	.....	.....	.....	6	2.43	9
	.....	.....	.....	.....	.....	1	2.34	9
	.....	.....	.....	.....	.....	6	2.25	9
	.....	.....	.....	.....	.....	15	2.25	10
	.....	.....	.....	.....	.....	1	2.20	9
	.....	.....	.....	.....	.....	1	2.17	9

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Rates of wages and hours of employment in 1907 in news-print paper mills (18 mills in United States and 3 mills in Canada); in ground-wood pulp mills (20 mills in United States and 3 mills in Canada); in sulphite fiber mills (7 mills in United States and 2 mills in Canada)—Continued.

OCCUPATIONS COMMON TO PAPER MILLS, GROUND-WOOD PULP MILLS, AND SULPHITE FIBER MILLS—Continued.

	Canada.				United States.			
	Number of mills.	Number of employees.	Wages per day.	Hours per day.	Number of mills.	Number of employees.	Wages per day.	Hours per day.
Repairs—Continued.								
Millwright						1	$2.07	9
						4	2.00	10
						4	1.98	10
						1	1.75	9
						1	1.75	10
						1	1.50	10
Millwright helper	2	1	$1.75	10	7	2	2.34	9
		3	1.70	10		4	2.25	9
		1	1.65	10		4	2.16	9
						8	2.00	9
						2	1.98	9
						1	1.90	9
						3	1.80	9
						1	1.75	9
						4	1.70	9
Carpenter	2	1	3.25	10	10	1	2.76	9
		1	2.70	10		3	2.75	9
		1	2.20	10		2	2.70	9
		8	2.00	10		1	2.52	9
		11	1.90	10		5	2.50	9
		3	1.80	10		1	2.45	9
		5	1.70	10		11	2.25	9
						2	2.16	9
						2	2.05	9
						1	2.00	10
Head piper	3	1	2.80	10	10	1	4.13	9
		2	2.50	10		3	3.00	9
						1	2.93	9
						1	2.88	9
						1	2.70	9
						1	2.50	9
						2	2.50	10
Piper	4	5	2.00	10	13	2	2.75	9
		1	1.80	10		1	2.75	10
		1	1.75	10		1	2.62	9
		2	1.70	10		4	2.52	9
		5	1.50	10		3	2.50	9
						2	2.50	10
						1	2.46	9
						1	2.34	9
						6	2.25	9
						1	2.25	10
						1	2.16	9
						1	2.11	9
						5	2.00	9
						1	2.00	10
						1	1.98	9
						2	1.75	10
						1	1.65	9
						1	1.50	10
Blacksmith	3	1	3.40	10	15	1	3.24	9
		1	3.25	10		1	3.06	9
		1	2.25	10		4	3.00	9
		1	2.00	10		1	2.97	9
		1	1.80	10		2	2.50	9
						2	2.50	10
						1	2.25	9
						1	2.13	10
						2	2.00	9
						1	2.00	10
						1	1.89	9
Blacksmith helper	2	1	1.75	10	6	2	2.00	9
		1	1.60	10		1	1.90	9
		1	1.50	10		1	1.75	9
						2	1.70	9
						1	1.63	10

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Rates of wages and hours of employment in 1907 in newsprint paper mills (18 mills in United States and 3 mills in Canada); in ground-wood pulp mills (20 mills in United States and 3 mills in Canada); in sulphite fiber mills (7 mills in United States and 2 mills in Canada)—Continued.

OCCUPATIONS COMMON TO PAPER MILLS, GROUND-WOOD PULP MILLS, AND SULPHITE PAPER MILLS—Continued.

	Canada.				United States.			
	Number of mills.	Number of employees.	Wages per day.	Hours per day.	Number of mills.	Number of employees.	Wages per day.	Hours per day.
Repairs—Continued.								
Mason	3	3	$5.00	10	6	1	$4.00	9
		1	4.95	9		2	3.15	9
		1	4.00	10		2	2.75	9
		1	3.50	10		1	2.50	10
		2	2.75	10		3	2.25	9
		2	2.50	10				
Mason helper	3	1	2.00	10	2	2	1.80	9
		3	1.50	10				
Painter	3	1	2.50	10	9	3	2.50	9
		1	2.25	10		1	2.25	9
		1	2.00	10		1	2.25	10
		1	1.90	10		1	2.16	9
		1	1.70	10		1	2.07	9
		1	1.50	10		1	2.00	9
						1	2.00	10
Knife grinder	1	2	1.92	12	3	3	2.00	10
						1	1.85	9
						1	1.80	9
						3	1.79	8
						2	1.70	10
Saw filer	3	1	4.00	10	3	1	2.25	9
		1	2.00	10		1	2.07	9
		1	1.80	10		1	1.90	9
Electrician	1	1	2.75	10	7	1	3.00	9
						1	2.52	9
						1	2.44	11
						1	2.25	9
						1	2.15	9
						1	2.00	9
						2	1.98	9
						1	1.75	9
Lead burner	1	2	3.00	10	3	1	4.50	9
						1	2.50	9
						1	2.04	9
						1	1.75	9

Total labor cost of 1 ton of news-print paper in 18 mills.

[Showing variation in three years.]

	1900.	1905.	1907.		1900.	1905.	1907.
1	$9.06	$9.92	$11.77	10	$10.60	$11.43	$12.88
2	9.14	10.75	13.02	11	10.63	11.85	12.89
3	9.41	11.69	13.42	12	10.68	10.01	11.26
4	9.59	13.31	13.99	13	10.81	14.98	16.25
5	9.76	13.05	14.09	14	11.43	14.20	14.94
6	10.11	13.10	14.37	15	11.61	13.79	14.67
7	10.48	11.78	12.10	16	11.64	12.17	13.42
8	10.49	12.55	13.76	17	11.97	14.33	16.47
9	10.52	14.72	17.03	18	12.77	14.01	14.40

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Total labor cost of 1 ton of ground wood pulp in 20 mills.

[Showing variation in three years.]

	1900.	1905.	1907.		1900.	1905.	1907.
1	$4.25	$5.48	$6.48	11	$5.35	$6.17	$7.18
2	4.34	5.33	5.54	12	5.36	6.07	6.22
3	4.43	5.48	6.55	13	5.38	6.74	7.02
4	4.61	6.79	8.00	14	5.42	6.62	6.80
5	4.63	5.71	7.00	15	5.43	6.05	6.61
6	4.64	4.68	5.15	16	5.51	6.38	7.24
7	4.77	4.39	4.96	17	5.72	8.31	8.97
8	4.95	7.83	8.45	18	6.13	6.34	6.84
9	5.11	7.03	7.32	19	6.65	8.05	8.00
10	5.18	6.87	7.07	20	6.77	8.14	8.64

Total labor cost of 1 ton of sulphite fiber in 7 mills.

[Showing variation in three years.]

	1900.	1905.	1907.		1900.	1905.	1907.
1	$8.78	$10.50	$12.56	5	$10.04	$12.76	$13.31
2	9.28	12.00	13.04	6	10.45	9.17	12.70
3	9.47	11.67	11.92	7	10.72	13.92	16.78
4	9.96	12.77	14.20				

Table showing variation in number of days in operation in 18 news-print paper mills.

	1900.	1905.	1907.		1900.	1905.	1907.
1	289	290	310	10	306	285	305
2	294	248	240	11	309	285	290
3	299	276	304	12	310	310	310
4	300	290	265	13	311	284	293
5	300	270	300	14	311	284	307
6	303	285	299	15	311	285	310
7	304	246	273	16	311	281	310
8	305	259	296	17	311	285	291
9	305	258	311	18	311	285	310

Table showing changes in speed in 18 news-print paper mills.

[Speed in feet per minute.]

	1900.	1905.	1907.		1900.	1905.	1907.
1	248	253	248	10	375	[a] 509	509
2	275	300	325	11	375	393	458
3	290	303	307	12	377	407	454
4	300	330	340	13	382	399	419
5	304	314	323	14	388	390	398
6	322	358	358	15	400	425	450
7	325	375	400	16	400	450	485
8	345	342	345	17	422	411	445
9	366	368	367	18	425	445	450

[a] Machines lengthened

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Table showing monthly variation in average mill labor cost per ton of news-print paper (in 1907).

[Base: January=100 per cent.]

	No. 1 mill.	No. 2 mill.	No. 3 mill.	No. 4 mill.		No. 1 mill.	No. 2 mill.	No. 3 mill.	No. 4 mill.
January	100	100	100	100	July	109	119	93	117
February	118	103	102	103	August	105	138	138	193
March	105	101	99	107	September	119	160	98	150
April	136	101	94	103	October	114	126	100	123
May	105	113	93	102	November	116	115	96	137
June	111	117	93	108	December	106	118	95	112

Table showing monthly variation in average mill labor cost per ton of ground wood pulp (in 1907).

[Base: January=100 per cent.]

	No. 1 mill.	No. 2 mill.	No. 3 mill.	No. 4 mill.	No. 5 mill.		No. 1 mill.	No. 2 mill.	No. 3 mill.	No. 4 mill.	No. 5 mill.
January	100	100	100	100	100	July	82	94	90	88	105
February	99	108	103	130	66	August	126	143	119	121	70
March	84	114	102	100	80	September	83	159	134	109	80
April	77	84	91	94	111	October	65	122	128	125	123
May	69	83	105	87	116	November	71	84	299	123	98
June	70	83	96	83	75	December	85	76	102	127	111

Table showing monthly variation in average mill labor cost per ton of sulphite fiber in 1907.

[Base: January=100 per cent.]

	Mill No. 1.	Mill No. 2.	Mill No. 3.		Mill No. 1.	Mill No. 2.	Mill No. 3.
January	100	100	100	July	116	69	95
February	106	100	100	August	139	76	95
March	101	87	97	September	126	144	93
April	101	73	109	October	144	76	94
May	104	64	95	November	155	78	136
June	110	72	91	December	185	114	142

Wages and hours of labor of compositors in 60 newspapers in the United States, 1900, 1905, and 1907.

City and State.	1900.				1905.				1907.			
	Number of employees.	Wages per week.	Hours per week.	Wages per hour.	Number of employees.	Wages per week.	Hours per week.	Wages per hour.	Number of employees.	Wages per week.	Hours per week.	Wages per hour.
Hartford, Conn.	3	$18.00	54	$0.3333	3	$20.00	48	$0.4167	3	$21.00	48	$0.4375
New Haven, Conn.	4	22.00	a 56	.3929	4	21.00	48	.4375	4	21.00	48	.4375
Portland, Me.	1	20.00	48	.4167	1	20.00	48	.4167	1	20.00	48	.4167
	2	18.00	48	.3750	2	18.00	48	.3750	3	18.00	48	.3750
	3	16.00	48	.3333	3	17.00	48	.3542	3	17.00	48	.3542
Boston, Mass.	2	25.00	48	.5208	1	25.50	42	.6071	2	25.50	42	.6071
	3	23.00	48	.4792	1	24.50	42	.5833	1	24.50	42	.5833
	2	22.00	48	.4583	47	22.50	42	.5357	24	22.50	42	.5357
	1	21.00	48	.4375	.....	.....	.....	.....	.....	.....	.....	.....
	2	20.00	48	.4167	.....	.....	.....	.....	.....	.....	.....	.....
	1	18.00	48	.3750	.....	.....	.....	.....	.....	.....	.....	.....

a Seven days per week

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Wages and hours of labor of compositors in 60 newspapers in the United States, 1900, 1905, and 1907—Continued.

City and State.	1900.				1905.				1907.			
	Number of employees.	Wages per week.	Hours per week.	Wages per hour.	Number of employees.	Wages per week.	Hours per week.	Wages per hour.	Number of employees.	Wages per week.	Hours per week.	Wages per hour.
Manchester, N. H.	2	$15.00	48	$0.3125	4	$18.00	48	$0.3750	4	$18.00	48	$0.3750
Jersey City, N. J.	12	18.00	48	.3750	1	24.00	48	.5000	1	27.00	48	.5625
	6	16.00	48	.3333	1	22.00	48	.4583	19	24.00	48	.5000
					18	21.00	48	.4375				
					1	18.00	48	.3750				
Albany, N. Y.	2	18.00	54	.3333	3	18.00	54	.3333	2	20.00	48	.4167
	3	15.00	54	.2778	1	17.00	54	.3148	2	19.00	48	.3958
Brooklyn, N. Y.	2	28.00	a 54	.5185	18	30.00	a 54	.5556	26	29.83	b 47	.6347
	1	27.00	a 54	.5000	1	26.00	a 54	.4815				
	6	26.00	a 54	.4815								
	1	25.00	a 54	.4630								
	2	24.50	a 54	.4537								
	3	24.00	a 54	.4444								
	1	23.00	a 54	.4259								
	1	22.50	a 54	.4167								
	1	21.00	a 54	.3889								
New York, N. Y.	16	30.00	48	.6250	23	30.00	50	.6000	16	31.00	48	.6458
	1	27.00	48	.5625								
	2	20.00	48	.4167								
	20	30.00	48	.6250	54	30.00	48	.6250	10	34.00	48	.7083
	1	29.00	48	.6042	38	27.00	48	.5625	58	31.00	48	.6458
	3	28.00	48	.5833					36	28.00	48	.5833
	48	27.00	48	.5625								
Syracuse, N. Y.	14	15.00	54	.2778	4	19.00	48	.3958	5	20.00	48	.4167
Troy, N. Y.	7	17.00	48	.3542	1	22.00	48	.4583	1	22.00	48	.4583
					5	20.00	48	.4167	6	20.00	48	.4167
Harrisburg, Pa.	1	14.00	60	.2333	1	14.00	54	.2593	2	16.00	54	.2963
	1	13.00	60	.2167	6	13.50	54	.2500	6	14.30	54	.2648
	2	12.00	60	.2000								
	3	10.00	60	.1667								
	1	9.00	60	.1500								
	1	8.00	60	.1333								
Philadelphia, Pa.	2	19.00	c 40	.4750	1	19.00	c 40	.4750	4	19.00	c 40	.4750
	5	18.00	c 40	.4500	4	18.00	c 40	.4500	1	15.00	d 32	.4688
	18	21.60	54	.4000	24	21.60	54	.4000	25	21.60	54	.4000
Pittsburg, Pa.	9	26.40	48	.5500	2	35.00	48	.7292	25	28.80	48	.6000
					1	33.00	48	.6875				
					2	32.00	48	.6667				
					1	30.00	48	.6250				
					1	22.00	48	.4583				
					2	20.00	48	.4167				
					4	18.00	48	.3750				
Pittsburg, Pa.	37	30.80	e 56	.5500	38	29.28	48	.6100	22	29.28	48	.6100
Scranton, Pa.	4	15.00	48	.3125	5	18.00	48	.3750	1	21.00	48	.4375
									4	19.00	48	.3958
Williamsport, Pa.	1	14.00	52	.2692	1	15.00	54	.2778	3	15.00	48	.3125
					2	14.00	54	.2593				
Providence, R. I.	14	19.25	e 56	.3438	11	18.00	48	.3750	3	24.00	48	.5000
									14	21.00	48	.4375
Wilmington, Del.	2	15.00	54	.2778	8	15.00	54	.2778	10	16.00	54	.2963
Washington, D. C.	11	23.10	42	.5500	26	24.78	42	.5900	24	24.57	42	.5850
									9	23.73	42	.5650
Jacksonville, Fla.	1	21.00	42	.5000	1	27.00	42	.6429	7	21.00	42	.5000
	1	18.00	42	.4286	1	25.00	42	.5952				
	1	13.00	42	.3097	2	24.00	42	.5714				
					1	23.00	42	.5476				
					1	21.00	42	.5000				
Atlanta, Ga.	18	18.00	48	.3750	10	21.00	48	.4375	10	21.00	48	.4375
	12	20.00	48	.4167	6	20.00	48	.4167	11	20.00	48	.4167
	5	17.00	48	.3542					4	18.00	48	.3750
Augusta, Ga.	4	15.00	54	.2778	1	18.00	48	.3750	4	18.00	48	.3776
					3	15.00	48	.3125				
Baltimore, Md.	8	20.00	e 57	.3509	2	20.00	48	.4167	2	20.00	48	.4139
	50	21.60	48	.4500	64	21.60	48	.4500	63	21.63	42	.5106
Chicago, Ill.	32	19.50	54	.3611	34	30.30	f 50½	.6000	35	30.30	f 50½	.6000
Peoria, Ill.	1	21.33	e 70	.3047	1	22.33	e 56	.3988	1	20.20	48	.4000
	1	20.33	e 70	.2904	1	21.33	e 56	.3809	2	19.20	48	.4082
					1	20.33	e 56	.3630				

a Eight hours for 5 days and 14 hours on Saturday.
b Eight hours for 5 days and 7 hours on Saturday.
c Five days per week.
d Four days per week.
e Seven days per week.
f Eight hours for 5 days and 10½ hours on Saturday.

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Wages and hours of labor of compositors in 60 newspapers in the United States, 1900, 1905, and 1907—Continued.

City and State.	1900.				1905.				1907.			
	Number of employees.	Wages per week.	Hours per week.	Wages per hour.	Number of employees.	Wages per week.	Hours per week.	Wages per hour.	Number of employees.	Wages per week.	Hours per week.	Wages per hour.
Springfield, Ill.	3	$15.00	54	$0.2778	3	$17.00	48	$0.3542	2	$18.00	48	$0.3750
Evansville, Ind.	6	18.60	48	.3875	8	20.40	48	.4250	2	24.00	48	.5000
									6	21.00	48	.4375
Des Moines, Iowa.	4	15.00	48	.3125	12	17.10	48	.3563	1	22.50	48	.4688
									13	19.50	48	.4063
	10	18.00	[a] 59½	.3025	8	22.50	48	.4688	12	22.50	48	.4688
					2	19.50	48	.4063				
Dubuque, Iowa.	2	11.00	54	.2037	3	16.00	51	.3137	2	16.00	48	.3333
	2	10.50	54	.1944								
Topeka, Kans.	4	15.00	48	.3125	5	17.50	48	.3646	5	18.00	48	.3750
Detroit, Mich.	10	22.50	48	.4688	12	24.00	48	.5000	5	26.40	48	.5500
									10	24.00	48	.5000
Grand Rapids, Mich.	1	24.00	54	.4444	5	21.56	[b] 49	.4400	6	21.00	48	.4375
	4	20.00	54	.3704								
Minneapolis, Minn	45	19.20	48	.4000	10	21.00	42	.5000	10	21.00	42	.5000
					10	18.90	42	.4500	10	18.90	42	.4500
St. Paul, Minn.	15	23.85	[c] 53	.4500	18	25.00	[d] 50	.5000	27	25.00	[d] 50	.5000
Kansas City, Mo.	20	24.00	48	.5000	39	24.00	48	.5000	49	24.00	48	.5000
St. Louis, Mo.	17	25.00	45	.5556	4	28.42	49	.5800	3	30.00	49	.6122
					20	26.10	45	.5800	1	29.50	[e] 48½	.6114
									1	27.50	45	.6111
									43	26.10	45	.5800
	28	[f]25.46	45	.5658	39	[f]26.96	45	.5991	52	[f]26.75	45	.5944
Omaha, Nebr.	3	24.00	48	.5000	6	21.00	48	.4375	8	21.00	48	.4375
	3	21.00	48	.4375								
Cincinnati, Ohio.	25	16.02	48	.3338	15	23.00	48	.4792	15	24.00	48	.5000
Cleveland, Ohio.	19	21.00	48	.4375	14	24.00	48	.5000	18	26.25	48	.5469
					4	21.00	48	.4375				
Sioux Falls, S. Dak	2	18.00	48	.3750	1	19.00	48	.3958	1	21.00	48	.4375
	4	15.00	48	.3125	1	17.00	48	.3542	1	18.00	48	.3750
					1	16.00	48	.3333	1	17.00	48	.3542
Milwaukee, Wis.	13	18.00	54	.3333	2	22.00	48	.4583	1	19.52	48	.4067
					1	20.00	48	.4167	6	19.00	48	.3958
					2	18.00	48	.3750				
					10	17.00	48	.3542				
Milwaukee, Wis.	7	22.00	48	.4583	12	23.00	48	.4792	15	24.00	48	.5000
Birmingham, Ala.	5	19.98	54	.3700	12	21.60	51	.4235	14	21.60	48	.4500
Montgomery, Ala.	2	12.00	48	.2500	2	14.40	48	.3000	2	16.80	48	.3500
Little Rock, Ark.	2	18.00	48	.3750	4	18.00	48	.3750	5	21.00	48	.4375
Louisville, Ky.	3	24.30	54	.4500	2	24.96	48	.5200	3	24.96	48	.5200
					5	24.00	48	.5000	6	24.00	48	.5000
New Orleans, La.	29	24.00	48	.5000	37	27.55	[g] 47½	.5800	33	27.55	[g] 47½	.5800
Nashville, Tenn.	7	21.00	48	.4375	9	24.00	48	.5000	14	24.00	48	.5000
Dallas, Tex.	1	35.00	48	.7292	13	26.40	48	.5500	16	26.40	48	.5500
	2	28.00	48	.5833								
	3	26.00	48	.5417								
	3	25.00	48	.5208								
	3	22.00	48	.4583								
	2	21.00	48	.4375								
	1	18.00	48	.3750								
Houston, Tex.	10	24.00	48	.5000	12	25.20	48	.5250	12	25.20	48	.5250
San Antonio, Tex.	7	24.50	[b] 49	.5000	6	24.75	[h] 49½	.5000	7	28.05	[i] 51	.5500
San Francisco, Cal.	1	30.00	45	.6667	12	30.00	45	.6667	20	36.00	45	.8000
	2	27.00	45	.6000								
	8	[c]30.95	57	.5430	12	30.00	45	.6667	13	36.00	45	.8000
Denver, Colo.	1	30.00	48	.6250	2	27.90	46	.6065	1	30.00	46	.6522
	9	26.10	48	.5438	3	26.10	46	.5674	3	28.64	46	.6226
Averages.	773	22.09	49.88	.4467	902	24.22	47.16	.5113	994	24.12	47.03	.5355

[a] Seven days per week.
[b] Eight hours for five days and nine hours on Saturday.
[c] Eight hours for five days and thirteen hours on Saturday.
[d] Eight hours for five days and ten hours on Saturday.
[e] Eight hours for five days and eight and one-quarter hours on Saturday.
[f] Average earnings of pieceworkers on full time.
[g] Seven and one-half hours per day for five days and ten hours on Saturday.
[h] Eight hours per day for five days and nine and one-half hours on Saturday.
[i] Eight hours per day for five days and eleven hours on Saturday.

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Wages and hours of labor of linotype operators in 54 newspapers in the United States, 1900, 1905, 1907.

City and State.	1900.				1905.				1907.			
	Number of employees.	Wages per week.	Hours per week.	Wages per hour.	Number of employees.	Wages per week.	Hours per week.	Wages per hour.	Number of employees.	Wages per week.	Hours per week.	Wages per hour.
Hartford, Conn.	5	$18.00	54	$0.3333	5	$20.00	48	$0.4167	5	$21.00	48	$0.4375
New Haven, Conn.	5	22.00	a 56	.3929	7	21.00	48	.4375	7	21.00	48	.4375
Portland, Me.	1	11.00	54	.2037	3	20.00	48	.4167	3	20.00	48	.4167
	1	9.00	54	.1667								
Boston, Mass.	1	25.00	42	.5952	1	25.50	42	.6071	1	25.00	42	.5952
	16	22.00	42	.5238	1	24.50	42	.5833	1	24.50	42	.5833
					1	23.50	42	.5595	1	23.50	42	.5595
					18	22.50	42	.5357	19	22.50	42	.5357
Manchester, N. H.	7	18.00	48	.3750	6	18.00	48	.3750	6	18.00	48	.3750
	3	12.00	48	.2500	2	13.50	48	.2813	3	13.50	48	.2813
Jersey City, N. J.	8	21.00	48	.4375	1	24.00	48	.5000	1	27.00	48	.5625
					10	22.00	48	.4583	12	24.00	48	.5000
Albany, N. Y.	5	20.00	48	.4167	7	20.00	48	.4167	6	22.00	48	.4583
Brooklyn, N. Y.	6	30.00	b 54	.5556	21	30.00	b 54	.5556	29	29.83	c 47	.6347
	4	28.00	b 54	.5185	1	26.00	b 54	.4815				
	4	27.00	b 54	.5000								
	1	24.50	b 54	.4537								
	1	24.00	b 54	.4444								
New York City, N. Y.	29	30.00	48	.6250	81	30.00	d 50	.6000	45	31.00	48	.6458
	4	27.00	48	.5625								
	6	30.00	48	.6250	70	30.00	48	.6250	10	34.00	48	.7083
	60	27.00	48	.5625	17	27.00	48	.5625	58	31.00	48	.6458
									22	28.00	48	.5833
Syracuse, N. Y.	10	18.00	48	.3750	10	19.50	48	.4063	10	20.50	48	.4271
Troy, N. Y.	1	25.00	48	.5208	1	25.00	48	.5208	1	25.00	48	.5208
	1	22.00	48	.4583	5	20.00	48	.4167	2	23.00	48	.4792
	4	20.00	48	.4167					5	20.00	48	.4167
Harrisburg, Pa.	1	18.00	60	.3000	4	e 23.36	54	e .4326	4	e 24.25	54	e .4491
	3	12.00	60	.2000								
Philadelphia, Pa.	8	21.00	f 40	.5250	10	21.00	f 40	.5250	8	22.00	f 40	.5500
					1	19.00	f 40	.4750				
	25	e 26.27	39	e .6736	29	e 28.01	39	e .7182	24	e 26.86	39	e .6887
Pittsburg, Pa.	14	26.40	48	.5500	26	28.80	48	.6000	24	28.80	48	.6000
	46	30.80	a 56	.5500	50	29.28	48	.6100	27	29.28	48	.6100
Scranton, Pa.	4	19.98	48	.4163	1	21.00	48	.4375	3	22.00	48	.4583
					4	20.00	48	.4167	3	21.00	48	.4375
									1	20.00	48	.4167
Williamsport, Pa.	4	15.00	42	.3571	5	e 20.25	54	e .3750	4	e 21.86	48	e .4554
Providence, R. I.	17	23.45	a 56	.4188	16	e 20.04	48	e .4175	8	e 30.55	42	e .7273
									6	e 24.90	48	e .5188
Washington, D. C.	18	23.10	42	.5500	24	24.78	42	.5900	4	26.04	42	.6200
									26	24.57	42	.5850
Jacksonville, Fla.	9	e 22.41	42	e .5336	13	e 27.80	42	e .6619	8	e 29.48	42	e .7019
Atlanta, Ga.	10	24.00	48	.5000	12	e 31.73	42	e .7555	14	e 32.90	42	e .7833
	6	20.00	48	.4167	12	e 33.00	48	.6875	11	e 31.47	48	.6556
	2	18.00	48	.3750								
Augusta, Ga.	1	18.00	48	.3750	1	22.83	56	.4077	3	e 25.16	48	e .5242
	3	16.50	48	.3438	2	20.87	48	.4348	1	18.00	48	.3750
					1	18.00	48	.3750				
Baltimore, Md.	32	22.50	42	.5357	36	22.50	42	.5357	34	24.00	42	.5714
Peoria, Ill.	6	21.33	e 56	.3809	2	26.53	e 56	.4738	4	23.70	48	.4938
					1	22.33	e 56	.3988	2	20.20	48	.4208
					3	21.33	e 56	.3809	4	19.20	48	.4000
Springfield, Ill.	4	16.00	48	.3333	4	18.00	48	.3750	4	19.00	48	.3958
Evansville, Ind.	2	22.50	48	.4688	5	27.50	48	.5729	1	29.61	48	.6169
	2	21.00	48	.4375	2	23.00	48	.4792	1	28.72	48	.5983
	2	19.50	48	.4063					1	28.56	48	.5950
									1	27.84	48	.5800
									1	25.78	48	.5371
									1	24.50	48	.5104
									1	21.64	48	.4508
Des Moines, Iowa.	6	23.45	e 56	.4188	8	22.50	48	.4688	10	22.50	48	.4688
									1	19.50	48	.4063
Dubuque, Iowa.	1	17.00	48	.3542	2	18.00	48	.3750	1	18.00	48	.3750
	2	16.00	48	.3333	3	16.00	48	.3300	4	16.00	48	.3333
	2	15.00	48	.3125								

a Seven days per week.
b Eight hours for five days and fourteen hours on Saturday.
c Eight hours for five days and seven hours on Saturday.
d Eight hours for five days and ten hours on Saturday.
e Average earnings of pieceworkers on full time.
f Five days per week.

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Wages and hours of labor of linotype operators in 54 newspapers in the United States, 1900, 1905, 1907—Continued.

City and State.	1900.				1905.				1907.			
	Number of employees.	Wages per week.	Hours per week.	Wages per hour.	Number of employees.	Wages per week.	Hours per week.	Wages per hour.	Number of employees.	Wages per week.	Hours per week.	Wages per hour.
Topeka, Kans.	4	$16.00	48	$0.3333	6	$18.00	48	$0.3750	1	$20.00	48	$0.4167
									4	18.00	48	.3750
Detroit, Mich.	10	23.10	42	.5500	12	22.50	a 45	.5000	7	23.10	42	.5500
									11	21.00	42	.5000
Grand Rapids Mich.	10	18.45	b 41	.4500	1	24.50	49	.5000	1	25.00	48	.5208
	6	16.40	b 41	.4000	6	21.56	49	.4400	6	21.00	48	.4375
Minneapolis, Minn.	24	19.20	48	.4000	11	c 25.38	42	c. 6043	11	c 26.72	42	c. 6362
					6	21.00	42	.5000	6	21.00	42	.5000
					5	18.90	42	.4500	5	18.90	42	.4500
Kansas City, Mo.	30	24.00	48	.5000	42	24.00	48	.5000	37	24.00	48	.5000
St. Louis, Mo.	26	d 31.04	45	d. 6898	31	d 26.09	45	d. 5798	32	d 33.31	45	d. 7402
Omaha, Nebr.	10	24.00	48	.5000	19	24.00	48	.5000	15	24.00	48	.5000
	10	21.00	48	.4375	7	21.00	48	.4375	8	21.00	48	.4375
Cincinnati, Ohio	9	21.96	48	.4575	12	23.00	48	.4792	12	24.00	48	.5000
Cleveland, Ohio	17	24.00	48	.5000	23	24.00	48	.5000	29	26.25	48	.5469
	8	21.00	48	.4375								
Sioux Falls, S. Dak.	4	17.00	48	.3542	2	20.00	48	.4167	1	22.50	48	.4688
					2	17.00	48	.3542	1	20.00	48	.4167
									1	17.00	48	.3542
Milwaukee, Wis.	7	22.41	51	.4394	1	24.00	48	.5000	1	24.00	48	.5000
					1	21.00	48	.4375	12	20.00	48	.4167
					2	20.50	48	.4271				
					1	20.00	48	.4167				
					1	19.50	48	.4063				
					2	18.50	48	.3854				
					1	18.00	48	.3750				
Milwaukee, Wis.	14	22.00	48	.4583	14	23.00	48	.4792	14	23.00	48	.4792
Birmingham, Ala.	5	18.06	42	.4300	8	21.00	42	.5000	9	21.00	42	.5000
Montgomery, Ala.	3	15.00	48	.3125	3	c 21.38	48	c. 4454	3	c 24.10	48	c. 5021
Louisville, Ky.	7	21.60	48	.4500	10	22.56	48	.4700	12	22.56	48	.4700
New Orleans, La.	15	28.80	48	.6000	20	c 32.83	e 45	c. 7296	18	c 32.98	e 45	c. 7329
Nashville, Tenn.	7	21.00	48	.4375	13	24.00	48	.5000	16	24.00	48	.5000
Dallas, Tex.	12	c 29.64	39	c. 7600	21	c 37.62	39	c. 9646	15	50.30	48	c 1.0479
Houston, Tex.	14	c 33.57	48	.6994	13	c 39.99	48	c. 8331	11	c 41.50	48	c. 8646
San Antonio, Tex.	9	25.25	f 50½	.5000	13	25.25	f 50½	.5000	14	28.05	g 51	.5500
San Francisco, Cal.	16	27.00	45	.6000	23	30.00	45	.6667	18	36.00	45	.8000
	13	27.00	45	.6000	1	33.00	45	.7333	1	39.00	45	.8667
					13	30.00	45	.6667	12	36.00	45	.8000
Denver, Colo.	9	30.00	48	.6250	5	30.00	46	.6522	g 10	38.33	46	c. 8333
	3	27.90	48	.5813	5	27.90	46	.6065				
					2	26.10	46	.5674				
Average...	715	24.45	47.48	.5185	903	26.36	46.74	.5688	851	27.34	46.24	.5930

a Seven hours for five days and ten hours on Friday.
b Eight hours for four days and nine hours on Saturday. Only five days per week.
c Average earnings of pieceworkers on full time.
d Seven days per week.
e Seven hours for five days and ten hours on Saturday.
f Eight hours for five days and ten and one-half hours on Saturday.
g Eight hours for five days and eleven hours on Saturday.

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The CHAIRMAN. The following table, showing rates of wages and hours per day paid in certain mills in Canada, was compiled from information submitted to the select committee by a number of Canadian pulp and paper mills, in response to a letter dated December 26, 1908. The paper mills represent about 20 per cent of the total capacity of paper, and the pulp mills about 30 per cent of the total capacity of pulp production in Canada.

TABLE SHOWING RATES OF WAGES AND HOURS PER DAY IN SOME OF THE PRINCIPAL OCCUPATIONS IN THE PAPER-MAKING INDUSTRY IN CANADA.

Rates shown are reported by 6 paper mills, 7 ground-wood pulp mills, and 4 sulphite fiber mills in response to circular letter of Select Committee on Pulp and Paper Investigation, dated December 26, 1908.

OCCUPATIONS IN PAPER MILLS.

	News, manila wrapping, etc. (2 mills).		News, book, wrapping, etc. (1 mill).		News, hanging, wrapping, etc. (1 mill).		Writing, litho., book, etc. (1 mill).		Book, catalogue, poster, etc. (1 mill).	
	Rate per day.	Hours per day.	Rate per day.	Hours per day.	Rate per day.	Hours per day.	Rate per day.	Hours per day.	Rate per day.	Hours per day.
Beaters.										
Head beater man	$3.00	12	$4.32	12	$2.76	12	(*)	....	(*)	....
Beater man	2.00	12	2.52	12	1.50	12	$2.00–3.00	12	2.00	12
	1.75	12								
Beater-man helper	1.25	12	2.10	12	1.40–1.65	12			1.45	12
Clay and size man	1.75	12	(*)	....	(*)	....	(*)	....	(*)	....
Paper machines.										
Machine tender	4.25	12	4.00	8	4.00	12	3.00	12	2.25	12
	2.50	12								
Back tender	3.00	12	2.56	8	3.00	12	1.50–1.60	12	1.40	12
	1.25	12								
Third hands	2.00	12	1.76	8	1.44–1.92	12	1.00–1.25	12	(*)	....
Fourth hands	1.75	12	1.26	8			(*)	....	(*)	....
Fifth hands	(*)	....	1.00	8			(*)	....	(*)	....
Reel boy	(*)	....	(*)	....	(*)	....	(*)	....	1.10	12
Finishing.										
Head finisher	4.00	12	2.75	10	(*)	....	(*)	....	1.75	12
Roll finisher	1.75	10	(*)	....	(*)	....	(*)	....	(*)	....
Sheet finisher	1.75	10	1.70	10	(*)	....	(*)	....	(*)	....
			1.50	10						
Finisher	(*)	....	(*)	....	(*)	....	1.65–2.00	10	1.50	12
Finisher girl	(*)	....	(*)	....	(*)	....	(*)	....	.75	12
Cutter man	(*)	....	1.70	10	(*)	....	(*)	....	1.75	12
Cutter girl	(*)	....	.80	10	(*)	....	.80	10	.85	12
Weigher (paper)	2.00	10	(*)	....	(*)	....	(*)	....	(*)	....
Head paper loader	2.00	10	(*)	....	(*)	....	(*)	....	(*)	....
Paper loader	1.60	10	(*)	....	(*)	....	(*)	....	(*)	....
Core handler	1.75–2.00	10	(*)	....	(*)	....	(*)	....	(*)	....
Counter	(*)	....	(*)	....	(*)	....	1.25–1.35	10	(*)	....
Stockman	(*)	....	(*)	....	(*)	....	(*)	....	1.45	12
Rag department.										
Men	(*)	....	(*)	....	(*)	....	1.25–1.75	10	(*)	....
Women	(*)	....	(*)	....	(*)	....	.80–1.00	10	(*)	....

No rate reported for occupation.

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TABLE SHOWING RATES OF WAGES AND HOURS PER DAY IN SOME OF THE PRINCIPAL OCCUPATIONS IN THE PAPER-MAKING INDUSTRY IN CANADA—Continued.

Rates shown are reported by 6 paper mills, 7 ground-wood pulp mills, and 4 sulphite fiber mills in response to circular letter of Select Committee on Pulp and Paper Investigation, dated December 26, 1908—Continued.

GROUND-WOOD OCCUPATIONS.

	Number of mills reporting.	Rate per day.	Hours per day.
Grinders:			
Head grinderman	2	$2.50	10
		2.04	12
Grinderman	7	2.00	12
		1.83	12
		1.75	10
		1.50	12
		1.40	12
		1.35	12
Ground wood screens	6	2.00	12
		1.80	12
		1.75	12
		1.50	12
		1.40	12
		1.00	12
Ground wood presses (wet machines)	7	2.15	12
		1.83	12
		1.80	12
		1.75	12
		1.50	12
		1.35	12
Pulp tester	1	2.50	12
Weigher (pulp)	1	2.00	12
Pulp loader	1	2.00	12
Baler (pulp)	1	1.25	12
Oiler	1	2.15	12

SULPHITE-FIBER OCCUPATIONS.

Acid plant:			
Acid maker	2	$3.00	12
		2.40	12
Acid maker helper	2	1.75	12
		1.44	12
Digester:			
Cook	4	3.00	12
		2.00	12
		1.75	12
Cook helper	3	1.80	12
		1.75	12
		1.25	12
Blow-pit man	1	1.75	12
Sulphite screens	2	1.80	12
		1.20	12
Sulphite presses (wet):			
Head pressman	2	3.00	12
		2.50	12
Pressman	4	1.75	12
		1.62	12
		1.50	12
Wash and press room	1	1.50–1.75	12
Bleach man	1	1.40	12
Helper	1	1.25	12

OCCUPATIONS IN GROUND-WOOD MILLS AND SULPHITE FIBER MILLS.

Wood room:			
Log decker	1	$1.80	12
Sawyers	3	2.25	10
		2.15	12
		1.92	12
Saw gang	1	1.25	10
Barkers	10	2.00	12
		1.80	12
		1.75	10
		1.68	12
		1.40	12
		1.25	10
Chipper	2	1.75	10
		1.25–1.50	12
Racks	1	1.68–1.86	12

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TABLE SHOWING RATES OF WAGES AND HOURS PER DAY IN SOME OF THE PRINCIPAL OCCUPATIONS IN THE PAPER-MAKING INDUSTRY IN CANADA—Continued.

Rates shown are reported by 6 paper mills, 7 ground-wood pulp mills, and 4 sulphite fiber mills in response to circular letter of Select Committee on Pulp and Paper Investigation, pated Decembes 26, 1908—Continued.

MISCELLANEOUS OCCUPATIONS.

	Number of mills reporting.	Rate per day.	Hours per day.
Laborers and wood handlers	11	$1.90	10
	.....	1.80	12
	.....	1.75	12
	.....	1.68	12
	.....	1.65	10
	.....	1.60–2.00	10
	.....	1.50	10
	.....	1.50	12
	.....	1.10–1.50	10
	.....	1.25	10
	.....	1.25	(a)
	.....	1.17	12
River man	1	1.25	10
Teamster	3	1.40	(a)
	.....	1.25	10
Steam plant:			
Head engineer	1	4.00	12
Second engineer	1	3.25	12
Engineer	1	2.00	12
Head fireman	1	2.25	12
Fireman	5	2.10	12
	.....	2.04	12
	.....	2.00	12
	.....	1.75–2.00	12
	.....	1.75	12
Dynamo man	1	1.35	12
Repairs:			
Head millwright	1	4.00	10
Millwright	2	3.00	10
	.....	1.75	12
Millwright helper	2	2.50	10
	.....	2.25	10
	.....	2.20	10
Head mechanic	1	2.50	12
Mechanic	1	1.50	12
Machinist	2	2.40	12
	.....	2.25–2.75	10
Carpenter	3	2.40	12
	.....	2.10	12
	.....	2.00	12
	.....	1.75	12
Piper	2	2.50	10
	.....	2.00	10
Blacksmith	1	2.10	12

a Not reported.

SWEDISH FORESTS.

UNITED STATES DEPARTMENT OF AGRICULTURE,
FOREST SERVICE,
Washington, December 28, 1908.

Hon. JAMES R. MANN,
House of Representatives.

DEAR SIR: As you suggested, I have read over somewhat carefully the report on forestry in Sweden, by Colonel Andrews, printed on pages 2506 to 2531 of the pulp and paper investigation hearings. This is an excellent statement concerning the development of forestry in Sweden and the methods by which the public forests are managed and forest education encouraged. It gives nothing, however, upon the total amount of standing timber in Sweden, nor upon the actual

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quantity of spruce timber. Some of the principal points brought out are as follows:

The total land area of Sweden is 102,797,720 acres, of which 47,500,000, or 46 per cent, are forested. Public forests cover 18,427,243 acres, or nearly 39 per cent of all forests. Of the approximately 29,000,000 acres of private forests, 7,000,000 acres, or 24 per cent, are subject to government regulations in regard to the cutting of timber and reforestation.

The forests of Sweden are mostly in the north central part of the country, and consist chiefly of Scotch pine and Norway spruce, but no statement is made as to the proportions of these species.

The total cut of forest products in Sweden in 1897, the latest year for which this report gives statistics, was 28,000,000 cubic meters; 7,000,000 cubic meters of raw material (mostly lumber) were exported, and also 1,200,000 cubic meters of manufactured woodenware. The total value of the exports of wood products from Sweden in 1897 was $97,662,700, of which wood pulp amounted to only $6,000,000, or a little more than 6 per cent. The wood-pulp industry in Sweden consumes 7 per cent of the total cut of wood.

From another source I find that nearly as much wood pulp is exported from Norway as from Sweden, but that very much less other forest products are exported from the former country.

Yours, very truly,

R. S. KELLOGG,
Assistant Forester.

THE UNION BAG AND PAPER COMPANY,
New York, January 12, 1909.

Hon. JAMES R. MANN,
House of Representatives, Washington, D. C.

DEAR MR. MANN: I have had our forester in Canada, who obtained his education and has had a good deal of experience in Sweden, write me a description of the method of cutting trees in their forest districts, with anything else that occurred to him that he thought would be interesting.

He has written quite a long dissertation. If you are at all interested, I will be glad to have a copy of it made and sent to you, just as he has written it.

He describes how the territories are divided into districts, how the trees which are to be cut are stamped, how they are sold, and how the work is watched over; the marking of the logs; copies of contracts that are made with jobbers in Sweden, both for lumber and pulp wood.

There is quite a little in this article which is irrelevant to the particular subject, but if you would like to have it I will be glad to send you a copy.

Yours, very truly,

EDGAR G. BARRATT, *President.*

40197—No. 40—09——3

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THE UNION BAG AND PAPER COMPANY,
New York, January 19, 1909.

Mr. JAMES R. MANN,
Chairman, House of Representatives,
Washington, D. C.

DEAR SIR: In compliance with your favor of the 14th, we take pleasure in inclosing to you herewith a description of the method of cutting trees in the forest districts of Sweden, which has been written by our forester in Canada. We send it to you just as he has written it to us, and trust you will find some information of interest therein.

Yours, very truly,

C. R. MCMILLEN,
Assistant to President.

LUMBERING IN SWEDEN.

Sweden is divided into seven forest districts.

Every district is subdivided and again subdivided.

The government forests are supervised by a general intendant, under whom are seven intendants.

Every intendant has a district which is cut into smaller districts, ahead of which is an ofverjagmastare for every landscape, and under him a jagmastare (forester) for every country (socken in Swedish) where the Government has any property.

In the early summer the foresters meet the ofverjagmastare, and then it is agreed what ought to be sold. The ofverjagmastare delivers the proposal to the intendant and it is always accepted.

Thereafter the ofverjagmastare (head forester) gives orders to extra foresters to stamp all trees which are going to be sold, and the extra foresters start out with a lot of foremen and gangs.

The stamping is done by cutting away the bark from the stem of the tree, and government's crown is put on with a hammer on the part of the root above the ground and another stamp breast high from the ground.

When the trees are stamped a protocol is made over dimensions breast high, sort and quality on every lot, which protocol thereafter is printed, and to hand for anyone that wants to buy; also the conditions under which the sale is conducted.

The trees are sold in lots on public auctions and the buyer pays about nine months afterwards for what he has bought, giving guarantee for the amount.

The rules for cutting of forests of the Government are:

(1) The mark on the root of the tree must not be touched.

(2) The mark on the log nearest root has to lay upwards so that it can be easily seen by the comptroller of the Government.

(3) The logs can not be marked or scaled before the comptroller gives his permission.

(4) No trees that are not marked or stamped by the Government has to be touched under any conditions without permission of the comptroller.

(5) When logging starts, this has first to be reported to the forester of the district and a written permit is received.

(6) After the cutting is done, the permit has to be returned.

In spring this place has to be cleared up by the Government, but in the case of private property, this clearing has to be done by the owner carefully.

The replanting is only made where trees stand wide apart after the logging, and where spruce growth has obliged cutting all down, but where private ownership exists, the forests are mostly cut to narrow dimensions and here sowing is necessary.

This sowing is done in spring and early part of summer, but before sowing branches have to be cleared off fallen trees, and tops and brushwood cut down, so that the ground is in good condition for sowing.

Much is experimented in planting young trees, but it has the great disadvantage of being very expensive and so many plants go rotten when grown, on account of its being nearly impossible to plant a tree without hurting the root a little.

In most places in Sweden owned by Government pine and spruce is cut to 10 inches 4 feet from the ground, but if there is a dense growth of spruce all is cut, as spruce goes rotten if cutting is done in a dense growth.

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There are also forests undivided belonging to counties. There the trees are stamped and sold in the same way as the government forest, and mostly also controlled by government foresters.

On an average acre of spruce in Sweden 8 to 10 cords of pulp wood can be cut, but then they can cut pulp wood 3 meters long and 3 inches top measure.

Mixed with spruce grow Swedish red pine (not like Norway pine) and the same leaf trees as exist in this country, but there is no cedar, cypress, white pine, or balsam, and it is a little difference in Swedish spruce to Canadian. The cotts on the spruce in Sweden are about eight times as big as here and the sawn wood is whiter.

The growth of a spruce varies very much, depending on the soil, and the quicker it grows the lower is the quality and also the length gets shorter.

In good soil under good conditions a spruce will reach 11 inches in diameter on the stump breast-high in thirty-five to forty years; in poor soil it will take fifty to eighty years.

If there has been any cutting made where spruce grows dense or alone, this will stop the growth for some years, which will show itself if you cut a tree some years after the logging has passed. There the yearly rings will become very narrow for about five to seven years.

Sun is necessary for a good growth, but not so much for spruce as for pine, therefore when cutting has been done in a pine growth a couple of years later those left will grow quicker than before.

In the Swedish forests are plenty of mosses, which the Government pays half the cost of ditching them out, also to clear up small creeks; thus if a creek is overgrown with bog and weeds this will suck up plenty of water and the bog will increase, and where it is bog no new plants or trees will grow to anything and other trees standing about will stop growing and go rotten.

There is another dangerous thing for the forests, and that is if the ground is full of springs.

When a root comes to where the spring is, it will suck up the cold water in quantities; then when the winter comes the water in the trunk freezes and therefore the inside of the tree becomes shaky.

On a new cut square face of a tree it shows like wet spots, and if they are big the sawn deals, battens, or boards will be very shaky, or thoroughly split up. If the spots are small they will sometimes go rotten and then the tree is sawn. But if they increase they can go so far as to the top of the tree and then the tree is without value.

This in Sweden is called "water wood," and very little is yet known to cure it except ditching. I am communicating with a Swedish head forester, who is experimenting and has promised to write me the results.

When a forest starts to grow quickly, the logs cut thereof will not float all the way, if a long stretch down to the mills, if they are not laid on land, so that air can come between them in the spring, to let the logs sweat out gum.

Canada, I suppose, has not yet experienced this, as their forests are yet very old. They will, however, when they start cutting the newer growths.

One of the largest firms in Sweden who do not believe in this bought 150,000 logs of a jobber, which was mostly young pine of very good quality and very little sap, and the whole lot was laid on a lake unpiled.

In the spring, when the ice melted and the men arrived to float them, they found only a couple of thousand, but when they looked at the bottom of the lake they could see all the logs side by side, and the firm believe now that it is necessary to leave all logs on land with some logs across underneath to let the air to them.

Where a forest is cut down and not replanted or resown there will mostly grow such a lot of weeds that afterwards no forest will ever grow there.

The United States can show plenty of samples of this, as also Germany.

Where a forest is well taken care of you will get both quality and quantity.

ANTON SELANDER.

O'KANE DEPARTMENT, *December 15, 1908.*

ESTIMATES, RULES, AND REGULATIONS.

Every lumber company or wood pulp company has an intendant for his forest, who has nothing to do with the sawmills or pulp mills, but with the manager of the company.

Taking a company with the amount of forests as, per example, this—The Gres Falls Company—the forests are divided into districts. A company with about 2,000,000

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acres would have about five to seven inspectors, and each inspector a district where he independently, after a meeting with the intendant, makes contracts with jobbers or buys lots of forest.

When the company has decided at their committee meeting how many logs shall be cut, the manager gives orders to the intendant, and he has a meeting with the inspectors and a plan is drawn.

In November mostly the cutting is started and the hauling down to the rivers and lakes starts at the same time.

Every tree is mostly cut 3 inches from the ground, no matter how deep the snow, except on government forests, where the stumps would be about 8 inches on account of the mark of the root.

When the choppers have cut the tree, they bark it, and cut the branches off, and thereafter have not to touch it before the company's estimator arrives to mark out where it has to be cut into logs.

This is done because it often happens that if a man without knowledge of quality cuts the logs one may get first quality half the length and a lot of knots in the other end, putting down the quality.

This is the case with the pine, but also an experienced man used to be there to say how much rot can be taken or left.

As soon as these have been hauled down, some thousands of logs to the river, a scaler comes and every scaler has two helpers. These helpers scale and pass the logs, one in each end, and between them they have a chain to measure the length. The scaler looks over the logs and marks down in a book length, dimensions, and kind of every one.

When the logs are scaled the jobbers start to mark them on side and ends with a light hammer, and when this is done the scaler and his helpers have to go over the logs to see that they are properly marked.

If they are not, the jobber has to do it over again.

When hauling is nearly at an end, the estimators go over the cut territory and mark left trees with his company mark. Now the jobber has to go back and cut down these trees.

If thereafter still some are left, the jobber has either to stay and take them down or pay a certain price per tree.

No cutting is started before the middle of October, or when heavy frost has set in, so that the hauling can start at the same time. The reason for this is that if cutting is done before hauling it can happen that logs will be left in the snow or lost until too late in spring to haul them.

After April no cutting is done, as it is supposed that the quality will suffer if logging is done when the snow is melting and life begins to return to the trees.

One exception from this, however, pulpwood and charcoal wood is cut the whole summer and piled loose and in fall it is hauled to the water where the companies nowadays let it stay until next year.

This, for two reasons, first, that it gets perfectly dry and nothing is lost by sinking when floated.

The other reason is that nearly all the bark scales itself in water and much trouble with barking saved.

If a company wants to buy a forest they send out men to count all unsold trees and measure them breast-high.

In a small forest the men calculate the number of logs and dimensions thereof out of every tree, which a foreman writes up on the spot.

If it is a big forest, the dimensions of the trees breast-high only are taken, and the quality is overlooked. Thereafter they start what is called "rule estimation," which is:

Some experienced men cross the forest and on their way they estimate the number of logs and measurements of same, say out of a hundred trees of each dimension breast-high.

When the forest is counted and the men come down to the office of the inspector they calculate the value of the forest by the amount of trees and logs that the men got.

This is done by making every tree into logs, and a table which shows him how much different logs are worth. From this he has to deduct calculated costs of hauling, floating, and other expenses and thereby get the net value.

Lastly, I beg to mention in Sweden there is a telephone to nearly every camp in the forests, making it possible for the inspector at all times to get all the information he requires.

ANTON SELANDER.

O'KANE DEPARTMENT, *December 15, 1908.*

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A log in Sweden is mostly marked with 21 marks, 3 in each end and the rest on the sides.

The marks in the end of the log are made with a light hammer and on the side with the same, except that this mark is so open that the piece cut out leaves the log and jumps also out of the hammer when one light blow is given.

Pulp wood is always marked with other marks on the side of the pieces than the logs are, so they can be easily divided by the booms.

By making three stripes in the bark of pulp wood most of the bark will be gone when the pieces arrive at the mills, and lots of troublesome barking unnecessary.

FORMULA OF SWEDISH (JOBBERS') CONTRACTS.

For .... I, ..., herewith agree to cut and haul down to ...., on places shown for me by the above company's employee, and lay the logs on cross logs of (if possible) dry spruce, for an agreed price of ..... per log, ... per foot, ... per cubic foot, after top measure round timber, all trees to a certain dimension, breast-high out or inside the bark or 20 feet from ground, or which are stamped with the mark.

The logs are to be carefully barked and branches also carefully cut off.

The length of the logs to be marked off by the company's estimator.

Every log has to be cut in odd lengths, but the company pay nothing for the last odd foot on every log.

No person is allowed to cut in the ax in the ends of the logs, or the jobbers will be fined ..... for every log found cut.

The logs will be scaled at times suitable to the company's employees.

When the scaling is going on the jobbers shall bring sufficient men to properly mark the logs for which the company does not pay.

After scaling, the jobber will receive two-thirds of the contracted price and the rest will be delivered after the logging is completely finished and the company's employees have had time to count how much it will amount to.

After most of the logs are cut the company's men will look over the limit and mark all trees that are left and those have to be cut and hauled immediately.

Should the contractor still leave some trees and he again wants the company's men to overlook the limit the jobber has to pay those men the (amount per day) for their work or pay (the amount) for every remaining tree or left log.

No nails are allowed to be driven in the logs or the jobber is fined (the amount) for every nail found in the log.

If contractor is found intoxicated during work he will lose his job and earnings, which later will be divided among the poor in his village.

If tree is found rotten this part has to be cut away by order of the company's men.

Every stump is not to be higher than 3 inches from the root. For every higher stump the contractor pays (the amount) to the company.

On government forests the crown mark has to be left on the stump and the crown mark breast-high not touched.

The log has to be laid with the breast-high mark upward.

If snow is on the logs when the scaler comes, this has to be swept away carefully before scaling.

The logs have to be sawn and are only used for incision on one side.

No heals after the cut has to remain.

This contract both the company and the jobber agree to fulfill in every detail.

(Name of company.)
(Name of jobber.)

Witnessed by—

PULP-WOOD CONTRACT.

For ..... I ..... herewith agree to cut and haul down to ..... mark and pile on strand, 3 feet high (so many cubic meters) inside of a year from data below.

Every piece to be ten foot (10) in length and smallest top measure 3 inches.

Every piece shall have at least three barked strips from end to end and be carefully stripped of branches and marked according to the order of the company's employees.

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The company will therefore pay (so much per cubic meter) loose measure laid on on land close by water as tightly packed as possible.

No rot will be accepted and no other wood than spruce dry or growing.

This contract is accepted by company and jobber which here below have signed their names.

(Company's name.)
(Jobber's name.)

Witnessed by—

STANDING TIMBER IN THE UNITED STATES.

DEPARTMENT OF COMMERCE AND LABOR,
BUREAU OF CORPORATIONS,
Washington, February 5, 1909.

Hon. JAMES R. MANN,
Chairman Select Committee on Pulp and Paper Investigation,
House of Representatives, Washington, D. C.

MY DEAR CONGRESSMAN: In reply to your letter of February 3, I would state that the field work by the Bureau of Corporations, on the quantity of standing timber, covered those parts of Virginia, North Carolina, and Georgia south and east of the mountains and the timbered parts of the following States: Florida, Alabama, Mississippi, Louisiana, Texas, Arkansas, Missouri, Michigan, Wisconsin, Minnesota, Montana, Idaho, Washington, Oregon, and California. A comparatively small part of the stumpage in the United States suitable for pulp and paper production is to be found in these States. There is also considerable hemlock and some spruce found in the Lake States and also on the Pacific coast; these are the soft woods at present employed for pulp and paper manufacture. The greater part of the stumpage in the United States suitable for paper making is to be found in Maine, New Hampshire, Vermont, New York, Pennsylvania, and West Virginia. These States are not in the area covered by the work of the bureau and I can not give you any information in regard to stumpage conditions in them. The information that the bureau has collected relates to merchantable timber and includes only a part of the stumpage which would be suitable for pulp and paper making.

The estimate of the total amount of privately owned merchantable standing timber on this entire area, obtained by the Bureau of Corporations in the States mentioned above, on the basis of product of lumber under present conditions, is 1,570 billion board feet. The Forest Service has estimated the standing timber on the forest reserves at 390 billion board feet; that on the unappropriated public lands, national parks, and Indian reservations, 59 billion, and that on the state lands, 35 billion. These figures, together with that obtained by the Bureau of Corporations, give a total of 2,050 billion, obtained through careful investigation. No similar investigation has been made for the privately owned timber outside the area covered by the Bureau of Corporations, but the Forest Service has made a tentative estimate of 450 billion feet for it, making the total standing timber in the United States 2,500 billion board feet.

Of the 1,570 billion board feet on which estimates were obtained by the Bureau of Corporations 870 billion were for the Western States,

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600 billion for the area in the South covered by the bureau, and 100 billion in the three Lake States. Of the 100 billion reported for the Lake States, about 20 billion was in hemlock and 2½ billion in spruce. Of the 870 billion reported for the Western States, about 69 billion was in hemlock and 25 billion in spruce. There was no hemlock or spruce reported for the Southern States. Until some tabulations at present under way are completed it will be impossible to give you figures by States in much further detail.

Yours, very sincerely,

HERBERT KNOX SMITH,
Commissioner.

WASTE PAPER.

AMERICAN NEWSPAPER PUBLISHERS' ASSOCIATION,
904 PULITZER BUILDING,
New York, January 19, 1909.

Hon. JAMES R. MANN,
Chairman Select Committee on Paper and Pulp Investigation,
Washington, D. C.

DEAR MR. MANN: I have talked with Mr. Overton, of Castle, Gottheil & Overton, 41 Park Row, which firm handles paper waste and ships large quantities of paper and rag waste out of New York. Mr. Overton says that approximately 1,000 tons of such waste goes out of New York every day, of which 600 tons is paper. It includes print waste of newspaper offices, returns from newspapers and magazines, books, strippings of binderies, and department-store wrappings. He says very little is burned.

Lockwood's Directory shows 29 news and paper stock makers in the country and 750 dealers in rag and paper stock, located in New York City alone.

The census report for 1906 indicates that 588,543 tons of "old or waste paper" was used in 1904 by paper mills—an average of nearly 2,000 tons per day, or three times the estimated output of New York City.

News-print paper makers seem to agree that New York City uses 650 tons of news-print paper per day. The ratio of news-print paper to all kinds of paper made in the entire country is about 30 per cent. That is, 4,000 tons of news against 14,000 tons of all kinds of paper per day. If, then, we apply the same percentage to New York City, it would appear that 2,000 tons of paper of all kinds are used there and that substantially 33 per cent is reclaimed.

Dr. John McG. Woodbury, who was commissioner of street cleaning of New York for a number of years, has kindly sent to me a copy of his report of the department of street cleaning for four years, ended December 31, 1905.

Doctor Woodbury has written to me under date of January 14, 1909, copy of which is inclosed, saying that the accumulation of waste paper in Manhattan, Bronx, and Brooklyn is 600 tons per week. He says:

I believe that if the market required a greater quantity, the output could be increased from 15 to 20 per cent. The paper recovered is separated into three different qualities;

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broken news, mixed, and straw board. Formerly what is now known as mixed was first and second manila. The running prices are:

		Cents.
Broken news	per hundred	[a] 22–30
Mixed	do	17–20
Strawboard	do	14–16

When prices run below minimum figures it does not pay to pick it.

The incineration of rubbish as a method of disposal was begun in New York City in 1902, but in 1905 this incineration was carried to a point of utilization by establishing a plant for generating electricity to light Williamsburg Bridge. I understand that the electrical generation has been discontinued and that the city has contracted with the Edison Company to furnish light for that structure. However, the sorting of rubbish continues. Doctor Woodbury's report indicated that the contractor who paid $1.50 per ton of the reclaimed material for the privilege took 60 per cent of the rubbish collection and that 40 per cent was burned. The receipts of the city for this privilege at scows and dumps were:

1902	$92,579.20
1903	71,044.72
1904	61,835.45
1905	57,028.00

The quantities of rubbish collected in these years were:

	Tons.	Cubic yards.
1902	132,740	1,675,480
1903	165,430	2,117,120
1904	167,390	2,136,870
1905	167,230	2,135,620

This rubbish included the following articles: Paper and rubbish, bottles, rags, excelsior, straw, mattresses, old clothes, pasteboard boxes, old shoes, leather and rubber scrap, carpets, house refuse generally.

This material, under city regulations, is kept indoors, and a red sign (P. & R.) indicating paper and rubbish is hung in a conspicuous place at the front until the driver calls for it.

One of the regulations provides:

All paper and other waste must be tied in bundles or otherwise prevented from becoming scattered in handling. These bundles and all refuse, such as boxes, barrels, worn-out furniture, cast-off clothing, etc., everything except garbage, dust, and ashes, must be kept inside of the house, or at least out of sight of the street, and protected from the rain. They must not be put into receptacles which are to be emptied and set back; they may be put into barrels or boxes which are to be taken away.

When this card is exposed in the basement window or other suitable place, it will serve as a signal for the "paper and rubbish" man to call on his next route.

Take this card down after he has called.

"Trade refuse," unless consisting of paper, excelsior, straw, rags, or wood, will not be taken. All other "trade refuse" must be disposed of at your own expense.

Yours, truly,

JOHN NORRIS,
Chairman of Committee on Paper.

[a] Sometimes as high as 35 cents has been obtained.

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GENERAL ELECTRIC COMPANY,
New York, January 14, 1909.

JOHN NORRIS, Esq.,
American Newspaper Publishers Association,
905 Pulitzer Building, New York City.

DEAR MR. NORRIS: I inclose you copy of my report on street cleaning, which pretty thoroughly gives the method of collection and the description and type of material collected and separated. I also send you a set of sheets from the Manhattan, Brooklyn, and Bronx dumps, showing the amount of waste paper accumulated per week, in tons. This is a fairly accurate statement of this recovery, running to about 600 tons per week in total.

I believe that if the market required a greater quantity, the output could be increased from 15 to 20 per cent. The paper recovered is separated into three different qualities: Broken news, mixed, and strawboard. Formerly what is now known as mixed was first and second manila. The running prices are:

		Cents.
Broken news	per hundred..	[a] 22–30
Mixed	do....	17–20
Strawboard	do....	14–16

When prices run below minimum figures it does not pay to pick it.

Any further information on this subject that you may wish I shall be very pleased to furnish.

Yours, sincerely, JOHN MCG. WOODBURY.

HEMLOCK REFUSE.

The CHAIRMAN. The following is a portion of a communication received January 21, 1909, from a manufacturer of pulp and paper, whose name is withheld, in regard to the use of hemlock and hemlock mill refuse:

Relative to hemlock pulp wood and hemlock mill refuse for the manufacture of paper, I beg to advise that further investigation shows that we are obtaining on an average of 2½ to 3½ cords of 128 cubic feet from each acre of land from which the hemlock timber has been removed. That the quantity of refuse material from the hemlock sawmill consisting of lath stock, slabs, edgings, and short material amounts to from two-fifths to one-half of a cord for each 1,000 feet of lumber sawed, but if the lath stock is retained by the sawmill people for lath the quantity remaining would be one-fourth to one-third cord per 1,000 feet of lumber sawed.

The sulphite pulp made from the above material is not of so good quality as that made from spruce, but answers very well for several grades of paper.

PRICES OF NEWS-PRINT PAPER.

INTERNATIONAL PAPER COMPANY,
New York, January 25, 1909.

Hon. JAMES R. MANN,
Chairman Select Committee, etc.,
House of Representatives, Washington, D. C.

DEAR SIR: I hand you herewith a table and chart purporting to show the delivered price paid for news-print paper by a New York daily since 1860. The compilation was made by Mr. Nathaniel Tuttle, who was connected for forty years with the paper in question. He has been collating data in regard to newspapers since 1873.

Very truly, yours,

CHESTER W. LYMAN,
Assistant to President.

[a] Sometimes as high as 35 cents has been obtained.

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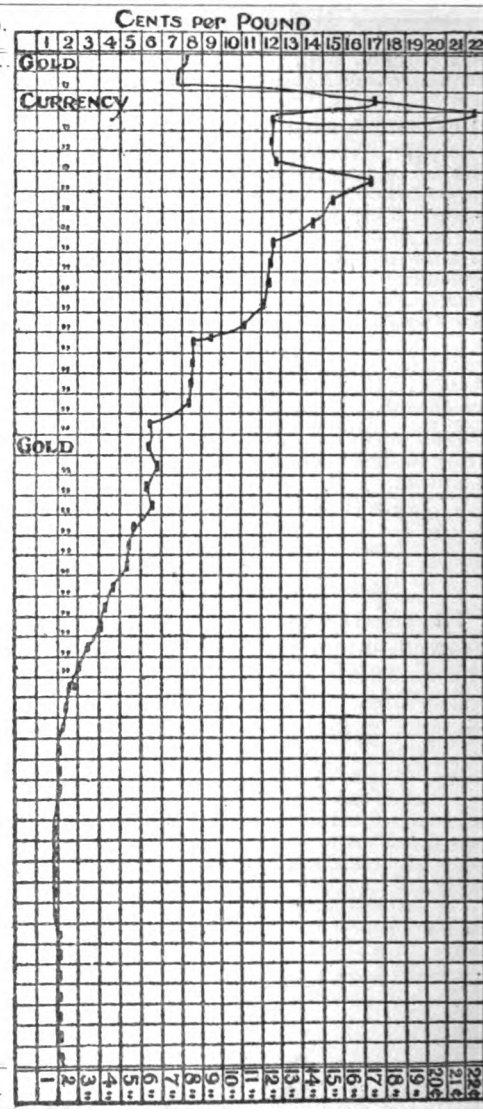
Year.	500 sheets per ream (65 lbs.).	
1860	$5.40	= 8.3 cents pound.
1861	4.96	= 7.6 "
1862	10.50	= 17.— "
1863	15.30	= 22.—12 "
1864	7.80	= 12. "
1865	8.22	= 12.6 "
1866	11.17	= 17.2 "
1867	9.68	= 15. "
1868	8.52	= 14.6 "
1869	8.11	= 12.5 "
1870	7.98	= 12.3 "
1871	7.88	= 12.1 "
1872	7.80	= 12. "
1873	7.25	= 11.2— "
1874	5.60	= 8.6+ "
1875	5.55	= 8.5+ "
1876	5.35	= 8.2+ "
1877	5.30	= 8.2— "
1878	4.20	= 6.46 "
1879	3.87	= 6.— "
1880	4.50	= 6.9+ "
1881	4.20	= 6.46 "
1882	3.95	= 6.+ "
1883	3.72½	= 5.73 "
1884	3.57½	= 5.5 "
1885	3.35	= 5.2— "
1886	3.10	= 4.77 "
1887	2.70	= 4.15 "
1888	2.60	= 4. "
1889	2.52	= 3.875 "
1890 *a*	2.20	= 3.4 "
1891	2.03	= 3.125 "
1892	2.	2.91 "
1893	1.90	2.75 "
1893	1.65	2.54 "
1894	1.46+	2.25 "
1895	1.46+	2.25 "
1896	1.46+	2.25 "
1897	1.17	1.8 "
1898	1.17	1.8 "
1899	1.17	1.8 "
1900	1.17	1.8 "
1901	1.17	1.8 "
1902	1.24	1.9 "
1903	1.33	2.05 "
1904	1.3	2.00 "
1905	1.3	2.00 "
1906	1.3	2.00 "
1907	1.3	2.00 "
1908	1.36	2.10 "

a Reams to 1890; rolls since.
Newspaper range of prices paid, yearly average.



S. D. WARREN & CO., PAPER MANUFACTURERS,
Boston, February 8, 1909.

Hon. JAMES R. MANN,
Chairman Select Committee
Pulp and Paper Investigation,
House of Representatives, Washington, D. C.

DEAR SIR: Referring to past correspondence, we inclose herewith a blueprint of a diagram showing certain facts in relation to the mills which we operate, and covering a period of nineteen years, as follows: Average net price received per pound, total capital invested, total sales, total tons produced.

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We call your attention to the marked drop in price which took place between 1889 and 1899, and also to the increase in tonnage, and consequent increase in total capital which took place between the years 1900 and the present time.

We would also ask you to note the relation between the sales and capital. At the beginning of the period it took the sales of one and six-tenths years to equal the total capital; during the intermediate period it took the sales of over two years to equal the total capital; while in 1907 it took the sales of one and eight-tenths years to equal the total capital. Perhaps this slowness of turnover is notable in the paper industry, and especially in the newspaper branch, where the investment is large in comparison with the value of the product.

Yours, very truly,

S. D. WARREN & Co.

PRICES OF BOOK PRINTING PAPER.

The CHAIRMAN. I asked the clerk of the Committee on Printing of the House to prepare a statement showing the average prices paid for paper at the Government Printing Office for a series of years, which statement may be inserted in the hearings.

PRICES PAID FOR BOOK PRINTING PAPER OF THE TWO CLASSES PRINCIPALLY USED AT THE GOVERNMENT PRINTING OFFICE UNDER AWARDS MADE BY THE JOINT COMMITTEE ON PRINTING FOR THE CONTRACT YEARS BEGINNING MARCH 1, 1896, TO 1908, BOTH INCLUSIVE.

Year.	Book printing paper.							
	Machine finish.				Sized and super-calendered.			
	Quantity.	Price per pound.			Quantity.	Price per pound.		
		High.	Low.	Mean.		High.	Low.	Mean.
	Pounds.	*Cents.*	*Cents.*	*Cents.*	*Pounds.*	*Cents.*	*Cents.*	*Cents.*
1896	3,864,000	3.5	3.2	3.35	2,055,200	4.4	4.2	4.3
1897	4,104,000	3.3	3.1	3.2	1,571,200	4.0	3.6	3.8
1898	4,115,000	3.0	2.9	2.95	2,218,000	3.3	3.2	3.25
1899	4,595,000	2.9	2.8	2.85	2,918,000	3.1	3.0	3.05
1900	4,584,000	4.7	4.0	4.3	3,318,000	5.2	4.3	4.7
1901	5,800,000	3.4	3.1	3.25	3,223,000	3.6	3.2	3.37
1902	6,024,000	3.5	3.1	3.27	3,333,000	3.7	3.3	3.5
1903	6,264,000	3.5	3.2	3.35	3,113,000	3.8	3.4	3.6
1904	6,264,000	3.6	3.3	3.45	2,879,000	3.8	3.4	3.6
1905	6,264,000	3.3	3.2	3.25	3,039,000	3.5	3.4	3.45
1906	6,264,000	3.2	3.0	3.1	3,023,000	3.3	3.2	3.25
1907	7,980,000	3.85	3.5	3.58	4,193,000	3.9	3.7	3.8
1908	8,100,000	4.2	3.6	3.85	[a] 4,488,000	4.0	3.9	3.95

[a] Specifications required 50 per cent rag.

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RIVER IMPROVEMENT AND FIRE PROTECTION.

INTERNATIONAL PAPER COMPANY,
New York, January 26, 1909.

Hon. JAMES R. MANN,
Chairman Select Committee, etc.,
House of Representatives, Washington, D. C.

DEAR SIR: As the scope of your investigation includes the conditions under which paper manufacturing is carried on, would it not be possible for you to consider, in making your report, the necessity for improving our rivers by impounding their headwaters for the purpose of increasing and improving the regularity of our water powers. Scarcely any improvement yet remains in sight which we can make, which will contribute so much to the economy of manufacture as river regulation.

I inclose a newspaper interview given some years ago by Mr. Chisholm, then president of our company, which covers the subject in a general way as applied to New York State. There is scarcely a river on which paper mills are but what could be very greatly benefited by water storage, and I believe that paper manufacturers have done more to create public interest in this subject than any other class.

Strangely enough, the public is very slow to grasp the importance of the proposition, and for a long while has been looking askance and with suspicion at it. Lately, however, the attention of the public has been called to the wastefulness of the present conditions through the agitation in connection with the conservation of our natural resources. The Inland Waterways Commission, President Roosevelt, Governor Hughes, Forest Commissioner Whipple of this State, and others high in authority have indorsed the project, so that the people are waking up to its importance and are beginning to realize that it is not a selfish movement set on foot by a few power owners.

It seems to me that attention might also be directed to the importance to the industry of better fire protection for the forests. Too much of the burden has been left to be borne by individual timberland owners, who, however careful of their own holdings, can not control their neighbors; nor can they remove such causes of fires as the locomotives and the carelessness of hunters, fishermen, and others, who enjoy the use of the woods but feel no responsibility for their protection.

If we are to be encouraged in our efforts to conserve our forest holdings, we must not only be protected from fires, but must be encouraged to hold cut-over lands and to replant denuded areas by relief from onerous taxation. No complaint is made, I think, of taxes on mature timber tracts, but it is certainly an obstacle in the way of holding cut-over lands for an almost indefinite period, to have taxes and interest compounding faster than the increment in the value of the timber.

I call these matters to your attention because they are among the most important conditions which surround paper manufacturing in this country which can be improved, and they all have a direct bearing on the cost of production and the maintenance of the industry in this country, at the same time being consistent with the interests of the consumer and the public.

Very truly, yours,

CHESTER W. LYMAN,
Assistant to President.

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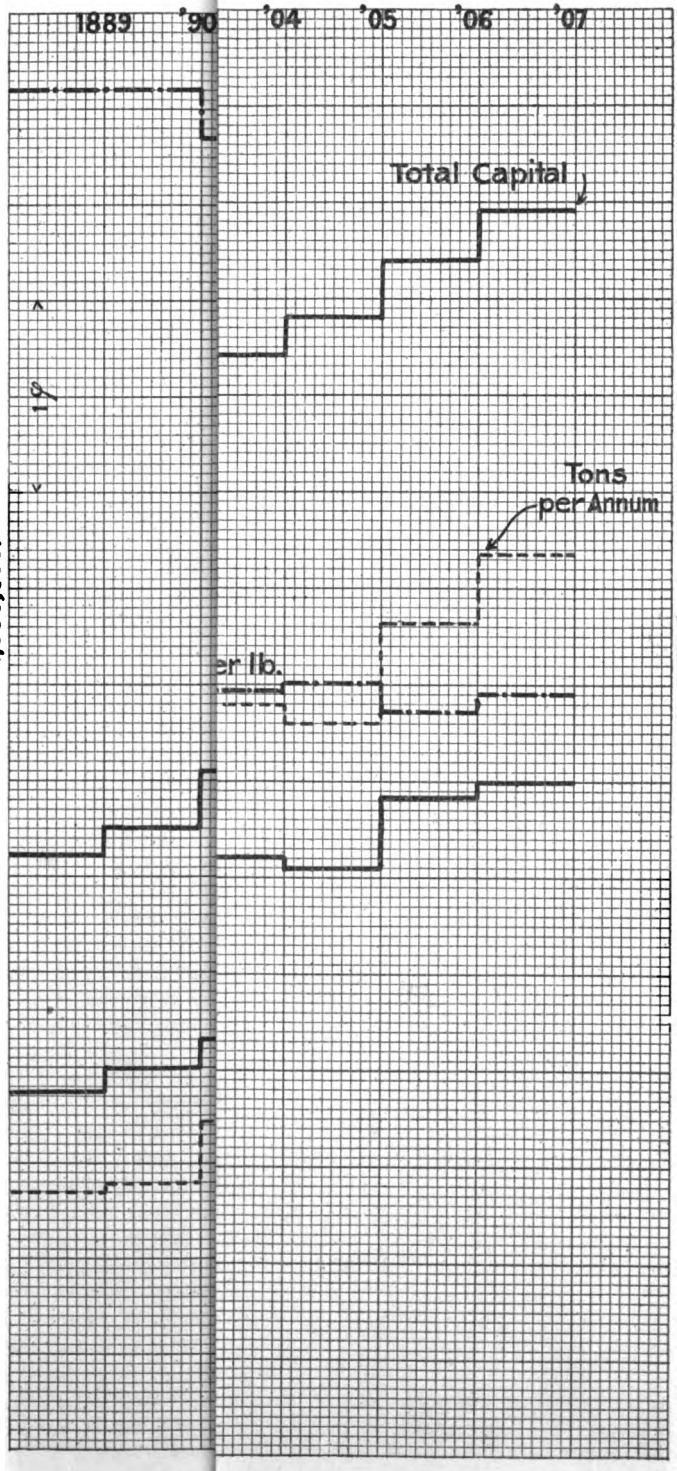

40197—No. 40—09. (To face page 3290.)

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CANADIAN VIEWS ON THE TARIFF.

THE RIORDON PAPER MILLS (LIMITED),
Merritton, Ontario, February 5, 1909.

JAS. R. MANN, Esq.,
House of Representatives, Washington, D. C.

DEAR MR. MANN: You have taken the liberty of asking us for facts and figures of a private nature concerning our business, and we have given you these freely. We now take the liberty of giving you our views on the United States tariff on pulp and paper.

We consider the question now at issue concerning this tariff is whether the further development of the industry shall occur in Europe or North America. We consider that the issue has been confused because the manufacturers of pulp and paper in the United States have taken the question to be whether the future development shall occur in the United States or Canada.

We consider that it can be taken for granted that the consumption of paper in North America will require an increase in production in the future such as there has been in the past.

This increase in production declined in North America about three years ago. About three years ago the increase in production in Europe became much more rapid, especially in chemical pulps.

About two years ago North America commenced importing chemical pulp from Europe at a much greater rate. The figures for unbleached rose from 12,000 tons in 1906 to 51,000 tons in 1907 and 64,000 tons in 1908. This latter increase in spite of the fact there was a very great decrease in general business.

There was last year a very great increase in the production of paper in Europe, and this year the reports show there are some 50 paper machines under construction for European mills. It seems very probable what has occurred in unbleached chemical pulp will soon occur in news paper and then in other grades of paper.

The logical result of the present tariff policy of the United States is occurring. The wood resources of the United States permit little further increase in the production of paper or pulp there. The price of power is another factor in the same direction with regard to ground wood. On account of these facts the United States is now obliged to get more and more of its requirements of pulp and paper from other countries.

If they get this pulp and paper from Europe, they practically get no benefit from their production. If they get them from Canada, their own capital will probably reap a considerable part of the profits, and their industries in general will probably get a considerable share in the increased general trade in Canada, as they now get a considerable share of the present general trade.

It seems to us that it is to the best interest of the United States that the increased production of pulp and paper to meet its increased demands should occur in Canada rather than in Europe, since it can not occur in the United States themselves. We consider that this last point is now settled by the fact that there has been practically no increase in production in the United States in the last few years and that the increased demand has been supplied from Europe.

It seems to us that what is required is the removal of the tariff barriers between Canada and the United States on all kinds of pulp

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and all kinds of paper containing ground wood, and an agreement on Canada's part not to restrict the exportation of pulp wood except from Ontario. We do not think the Ontario government could be induced to change its present policy.

We trust you will not consider this out of keeping with the relations you have established between us.

We remain, yours truly,

THE RIORDON PAPER MILLS (LIMITED),
Per CARL RIORDON.

EXHIBIT OF DISCS OF PULP WOOD

[Presented to the Select Committee on Pulp and Paper Investigation by the Union Bag and Paper Company.]

No.	Kind of wood.	Diameter inside of bark.	Age.	Where cut.
		Inches.	*Years.*	
41	Balsam	6.7	40	Northern shore of St. Lawrence River.
43	.....do	8.7	57	St. Maurice River Valley.
45	.....do	9.6	52	Southern shore of St. Lawrence River.
47	Spruce	8.4	85	Northern shore of St. Lawrence River.
49	.....do	8.4	188	Assumption and Black River district.
51	.....do	10.5	134	Southern shore of St. Lawrence River.
55	.....do	5.2	79	St. Maurice River Valley.
56	.....do	7.0	60	Do.
57	.....do	8.1	87	Do.
58	.....do	9.2	70	Do.
59	.....do	9.9	86	Do.
60	.....do	7.9	74	Do.
61	.....do	10.2	58	Do.
62	.....do	10.7	174	Do.
64	.....do	9.7	87	Do.
66	.....do	12.7	154	Adirondacks.
68	Black spruce	8.4	84	Northern shore of St. Lawrence River.
70	Hemlock	10.7	145	Adirondacks.
72	Cypres	10.9	73	St. Maurice River Valley.
74	Spruce	11.9	124	Do.
75	.....do	13.3	123	Do.
76	.....do	10.0	95	Do.

EXHIBIT OF PULP WOOD.

[Presented to the Select Committee on Pulp and Paper Investigation by the Kimberly-Clark Company.]

No.	Kind of wood.	Diameter inside of bark.	Age.	
		Inches.	*Years.*	
77	Spruce	6.0	104	
78	.....do	6.1	68	
79	Hemlock	6.2	128	
80	.....do	6.0	48	

Note.—The numbers are those of the committee, attached for convenience, and follow in succession the specimens referred to on page 2671 of the hearings. The missing numbers represent duplicate discs.

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WOOD STRUCTURE.

[Extracts from book in print written by Dr. N. A. Cobb, of the Agricultural Department.]

STRUCTURE OF WOOD.

All our common timbers have essentially the same structure. They are derived from the trunks of trees that, as a rule, show distinctly what are known as rings of annual growth. The trunk of the tree increases in size by the deposition of annual layers of wood. Each layer is a distinct feature, from the fact that the growth at different seasons is at different rates. In the spring and summer the growth is rapid. In the autumn and winter it is slow. This gives rise to soft or hard tissue according as the growth is rapid or slow. The more marked the seasons are where the timber grows the more marked, as a rule, are the annual rings of growth. The rings differ markedly in the different species of trees, but what has been said applies to all our common timber-producing species.

RATE AT WHICH WOOD SUCKS UP LIQUID.

Experiments to determine the permeability of redwood in different directions.

Blocks about fifteen millimeters across were prepared all of the same shape and the same size. In one the grain was longitudinal, in a second the same dimension was tangential, and in the third the same dimension was radial. These three blocks were placed simultaneously in absolute alcohol one millimeter deep. The object was to see at what relative rates the alcohol would penetrate the wood along these three lines. Previous to immersion in the alcohol, all the faces of the blocks except the lower and upper were covered with wax, so that the fluid should not creep round the ends of the "grain" in the case of the two latter specimens.

Results.—1. With the grain, the alcohol traversed the block in four and one-half seconds.

2. Tangentially, the alcohol penetrated two millimeters in three hours.

3. Radially the alcohol had made little if any progress in three hours.

Water in pieces of the same length moved longitudinally much more slowly. It traversed the length of the piece with the grain in from five to ten minutes. Adjacent layers of summer wood showed marked differences in the rate of progress. Radial and tangential directions not tried.

STATISTICS OF THE WORLD'S PAPER INDUSTRY.

AMERICAN NEWSPAPER PUBLISHERS ASSOCIATION,
Washington, February 12, 1909.

DEAR MR. MANN: You may be interested in the inclosed article from the World's Paper Trade Review (London) of January 15, 1909, giving statistics of the world's paper industry and showing that the United States used 40 per cent of all paper made—Canada 3 per cent

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A subsequent issue changed the production of Edward Lloyd from 67,000 tons to 87,000 tons per annum.

The Swedish Government has compiled and forwarded to its minister here a statement showing cost of following: Production of 1 ton of news-print paper; production of 1 ton of mechanically ground wood; production of 1 ton of sulphite pulp; labor cost in producing 1 ton of ground wood; labor cost in producing 1 ton of sulphite pulp; labor cost in conversion of pulp into paper.

Yours, respectfully, JOHN NORRIS,
Chairman of Committee on Paper.

[Extract from World's Paper Trade Review, January 15, 1909.]

STATISTICS OF THE WORLD'S PAPER INDUSTRY.

Mr. Franz Krawany, director of the Paper Union of Vienna, has issued a brochure in which he has compiled statistics showing the productive capacity of the various paper-making countries of the world. The brochure may be obtained from the Zentralblatt für die östr.-ungar. Papierindustrie, Wien 1, Nibelungengasse 1, post free for 1 mark. We abstract the following statistical information from a notice of Mr. Krawany's work in the Wochenblatt für Papierfabrikation:

The total annual production of paper in the whole world amounts to 8,000,000 tons. Of this quantity 55 per cent is produced in Europe. Germany accounts for 17 per cent of the world's production; England 11 per cent; France 7 per cent; Austria-Hungary 5 per cent; Russia and Finland 3½ per cent; Sweden 3 per cent; and Norway 1½ per cent. Of the 43 per cent to be credited to America, the United States produces nearly 40 per cent and Canada nearly 3 per cent.

The annual paper consumption per head of population in Europe is 10 kilograms (about 22½ pounds). For England the consumption is reckoned at 25 kilograms per head; Sweden 24 kilograms; Finland 23½ kilograms; Germany 19¾ kilograms; Norway 16 kilograms; Switzerland 15 kilograms; Holland 14½ kilograms; France 14 kilograms; Austria and Belgium 11 kilograms, and so on downward to Bosnia, which consumes only one-half kilogram per head of population. Canada has the greatest consumption per head of population in the whole world, at 29¼ kilograms, and the United States takes fourth place, at 22½ kilograms.

The number of paper machines, including board machines, is estimated at 9,109. The average production per machine depends of course on the class of paper, the width of machine, and the speed. It is shown in the following table:

Country.	Machines.	Average production per machine.
		Tons.
United States	1,051	2,830
Canada	394	2,670
Norway	79	2,220
Finland	(a)	1,780
Sweden	227	1,680
England	558	1,610
Germany	916	1,380
Austria-Hungary	283	1,380
Belgium	(a)	1,220
Russia	(a)	1,070
France	539	1,050
Italy	566	460

a Number not given separately.

The greatest production of a single firm is that of the International Paper Company, of New York, which produces annually 470,000 tons, or 6 per cent of the world's production. In Europe, the greatest production by a single firm is reached by Edward Lloyd (Limited), of Sittingbourne, with 67,500 tons per annum, and the second place is taken by the Darblay Company, of Essonne and Bellegrade, with 63,000 tons. The largest producer in Germany is the firm of Kubler & Niethammer, with 25,000 tons per annum.

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The greatest limited company in the paper-making industry is the International Paper Company, of New York, with a capital of £12,500,000, equal to about double the capital of the whole of the 80 limited companies in the German paper industry.

Assuming that the population and the consumption of paper per head will increase during the next ten years at the present rate, it is calculated that 1,000 more paper machines will be at work at the end of that time and that the world's production will have increased by 25 per cent. Whether this calculated increase will be restricted by a deficiency of the raw material, especially of wood, remains to be seen.

The world's production of mechanical wood pulp is, roughly, 3,500,000 tons; that of chemical wood pulp and straw pulp is 3,250,000 tons.

PAPER MAKING MATERIALS.

WASHINGTON, D. C., *January 22, 1909.*

Hon. J. M. MILLER,
Chairman Committee on Claims,
House of Representatives.

DEAR MR. MILLER: I herewith inclose you letter from Mr. John G. Luke, of New York City, with respect to H. R. 24328, appropriating $30,000 for experimentation of producing pulp from other substances than wood.

I have been familiar for some years with the experiments carried on by the manufacturers of wood pulp, and have asked Mr. Luke to write me a letter giving such information as he had with respect to these experiments. The accompanying letter is his answer. I have had it for some time and should have sent it to you earlier, but overlooked the matter. It is for your information and is full of suggestions and facts.

From my personal point of view, it doesn't seem there is much call for an expenditure of this much money right now, in view of what has been done.

I believe the Agriculture Department could, by corresponding with manufacturers, get very valuable information in connection with this matter, or the committee itself could get the same information by correspondence.

Very truly, yours, COLIN H. LIVINGSTONE.

WEST VIRGINIA PULP AND PAPER COMPANY,
New York, December 30, 1908.

Mr. COLIN H. LIVINGSTONE,
Washington, D. C.

DEAR MR. LIVINGSTONE: Replying to your favor of the 29th instant, I will say that the idea of using bagasse or cornstalks as a material from which to make paper is not new. I remember quite well that at the old Rockland mills, of which my father was manager, of the Jessup & Moore Paper Company, near Wilmington, Del., and which burned down April 29, 1867 (which date I remember, as it happened the day I was 10 years old), paper was made from straw, and they also used sorghum cane, which was grown to some extent in that section at that time. The only reason why both straw, and either cornstalks, bagasse, or sorghum cane, have not been used

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for paper-making purposes is because wood, up to this time, has been cheaper. However, paper makers everywhere are on the qui vive for new materials from which to make paper, and nearly every mill has conducted experiments on some scale with materials which are constantly being offered.

We have a chemical laboratory with small digesters and facilities for making these tests at three of our mills, and we have, I suppose, experimented with hundreds of different materials that have been offered to us. The fact is we never hesitate to make experiments on a small scale with any material that looks to us at all promising.

Referring further to bagasse and cornstalks: Both of these materials were experimented with over a period of several weeks in 1904 at the Cumberland Mills of S. D. Warren & Co., near Portland, Me. These people have a small machine and facilities for conducting these experiments. Dr. Vigo Drewsen, of this city, and who we think is perhaps as well posted and equipped to make these experiments as anyone we know of, got permission from S. D. Warren & Co. some four years ago to make these experiments for Cumberland Mills. I have before me as I write samples of paper made from these materials, with an estimate of the cost. At the time I took pains to confer with some of the S. D. Warren & Co. people, and found their judgment concurred with our own; that while there was no doubt the material could be used all right, the time was not ripe for it. Doctor Drewsen did, I believe, succeed in getting a little mill built to use bagasse down on the Mississippi River, and I understand a very good grade of coarse wrapping paper is now being made successfully from this material, but I don't think anything has been done in the way of making higher-grade papers.

The trouble with these particular materials is, first, the large amount of silicate in the shell, and which complicates the recovery of the soda ash used to produce the fiber, and also from the fact that the pith seriously interferes with making a high-grade paper. However, I don't question but that all these difficulties could be gotten over if it were possible to make a commercial success, but which I do not believe can be done in competition with wood at present prices.

From Doctor Drewsen's figures, I find they figured four years ago at Cumberland Mills pulp made from cornstalks would cost $36.85 per ton, but that it might be possible for a mill located somewhere in the Middle West to make pulp from cornstalks at $25.10 per ton. The first cost named is perhaps a little more than poplar wood, made from the soda process, costs the people at Cumberland Mills to-day, and the pulp made from cornstalks was supposed to take the place of poplar soda pulp.

Doctor Drewsen's estimate of what pulp could be made for in the Middle West from cornstalks looks attractive, and I would not be surprised, if competent people with sufficient capital were to take the matter up in earnest in the Middle West, but that they might be able to make a commercial success, but, the fact is, manufacturers in general are about as familiar with the situation as we are, and I think that some of the manufacturers in the Middle West would have taken the matter up and pushed it through to a successful conclusion before now if they had felt at all sanguine about the result.

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I trust this will give you the information you want. With best regards, and wishing you a happy and prosperous New Year, I remain,

Very truly, yours, JNO. G. LUKE.

P. S.—If your friends would care to correspond with Dr. V. Drewsen, Temple Court Building, New York, or Messrs. S. D. Warren & Co., No. 161 Devonshire street, Boston, Mass., they would no doubt be able to get more complete details than I have written you.

We are now conducting experiments with "okra" at the laboratory of our mills at Covington and Mechanicsville. An old fellow from down South thinks it is possible to grow the stuff and make it into pulp cheaply. We are, however, pretty sure he is mistaken as to the yield he claims, but he does show some very good samples of pulp. In fact, we have some pulp made ourselves that is good. If we could find something in this country cheap enough, like the esparto or Spanish grass used in Great Britain very extensively, it would be a very promising material.

J. G. L.

BOSTON, *February 2, 1909.*

Hon. JAMES R. MANN,
Chairman Select Committee.

DEAR SIR: In answer to yours of February 1, relating to our knowledge of the use of cornstalks or other annual plants in the manufacture of pulp.

We do not think anything we can give you on this subject would be of great value to your committee. Paper can be made out of any vegetable fiber, but its character varies with the particular fiber, through a wide range. The cost of reduction and the yield in paper per ton of material are other variables of wide range. We have not as yet proceeded beyond the stage of experiment with various fibers, including cornstalks. Freights on bulky material, like cornstalks, tend to localize their use.

We doubt if there is any other vegetable, at the moment, which can compete with wood. As the price of wood advances, if it does advance, the use of other fibers is more possible. We are therefore experimenting more with reference to the future than the present, but believe that the substitution of an annual crop for forest trees as the material of paper making is much to be desired.

Respectfully, yours,

S. D. WARREN & CO.

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[U. S. Department of Agriculture, Bureau of Chemistry—Circular No. 41.]

PAPER-MAKING MATERIALS AND THEIR CONSERVATION.

[By F. P. VEITCH, *chief, leather and paper laboratory.*]

INTRODUCTION.

This circular has been prepared to meet a demand for general information as to the suitability of various products, most of which are not now employed, for paper stock, and also to suggest ways of maintaining sufficient quantities of paper-making materials in the future. No directions for paper making are given. It has been established that numerous materials while technically suitable for paper making can not be so employed for economic reasons, but by a rational and conservative use of the materials now employed the problem of a sufficient supply of paper stock can be much simplified. For this reason suggestions based largely on the work of the Bureau of Chemistry are here made which, if followed, it is believed would result in greater economy in the use of raw materials, as well as in lower cost and better service to the consumer, without material reduction in total values. It should be distinctly understood that the figures on the waste materials are only estimates. It has been the aim to make these very conservative, as it is recognized that it is impossible to give even approximately accurate figures as to the quantities of such materials, the amounts that could actually be secured for paper making, or their cost. The aim is to direct attention to the large quantities of suitable material now wasted, leaving to the future the working out of the details of their profitable utilization.

The woods from which the greater part of the paper produced in this country is made are becoming scarcer and are obtained at greater cost each year. This fact has occasioned some concern to the paper industry in the past few years, so that manufacturers and investigators have turned their attention toward other agricultural products, many of which have been shown to be perfectly suited for paper making as far as the quality of the product is concerned. All kinds of wild and cultivated plants which are available in large quantities as well as all kinds of fibrous wastes have been used either experimentally or on a manufacturing scale for paper making. These facts are well known to paper makers, who have themselves experimented on a mill scale with many materials—woods, plants, and fibrous wastes—and have placed their treatment on a practical basis. Nevertheless many inquiries are constantly received from paper manufacturers and others as to the possibilities of making paper from some new material.

Practically all fibrous vegetable materials will make paper, the quality being governed by the percentage of fiber sufficiently resistant to stand the action of the chemicals necessary to reduce to a working condition the most resistant fibers, while the quality of the paper which these materials will make is determined by the length, strength, and felting qualities of the fibers and the chemical nature of the cellulose which they contain; the longer and stronger the fibers and the purer the cellulose (the more closely it corresponds to normal cellulose), the better the paper, the longer it will last, the more wear it will stand, and the less it will discolor with time or use.

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CLASSIFICATION OF MATERIALS.

The materials which may be used in paper making can be roughly divided into four groups:

(1) Seed hairs, of which cotton is the only representative.

(2) Bast fibers, such as flax, jute, hemp, ramie, China grass, sunn hemp, common nettle, paper mulberry, and the fibers obtained from the fibrovascular bundles of plants such as manila and New Zealand flax.

(3) The whole stems and the leaves of straws and grasses, such as esparto (leaves only), corn, sugar cane, bamboo, other wild and cultivated grasses, cotton stalks, and materials of like nature.

(4) The various kinds of wood, those most used being spruce, hemlock, poplar, and cotton wood.

Most of the materials of the first three classes are used in paper making in the form of wastes from other industries; those of the first two classes as scutching, mill, and rag wastes of the textile industries; while those of the third class are used in the form of wastes from the agricultural industries. Esparto, bamboo, and paper mulberry are not wasted from other industries, but are gathered primarily for paper making. The use of materials in the form of waste is not due to particular difficulties in separation or handling nor to the unsuitability of the original material, but solely to the fact that these materials in their original form command a higher price for other purposes than for paper making. Indeed, all of these materials will make paper of greater strength, durability, and value before going through other manufacturing processes or when used in the form of worn and soiled rags. For example, new cotton fiber, as baled cotton, or that known as "linters," which is removed from the ginned cotton seed as a preliminary step in the cotton-oil industry, is perfectly suited for the manufacture of high-grade paper, but the demand at the price that must be asked does not justify the use of this material for paper making. Similar conditions exist as to the materials of the second class, which command from 3 to 20 cents per pound for the manufacture of cloth, bagging, ropes, and cordage.

The materials of the first two classes, because of the length, strength, and felting qualities of their fiber and the resistance to chemicals and to decay of the cellulose they contain, can be made into papers of the highest quality, and each material gives certain characteristics and individuality to the paper made from it. It is customary to consider the first two classes together.

The materials of the third class belong chiefly to the class of compound celluloses known as pecto and ligno celluloses, and are distinguished from the paper-making point of view not only by the presence of celluloses of different chemical composition and lower felting qualities, but also by a larger content of nonfibrous cellulose which, although it has some desirable qualities even when present in large quantities, as in bagasse or cornstalks, produces parchment-like effects in the papers made from them. A further technical objection to these materials is that the chemical treatment required to reduce the fiber properly is too severe for the nonfibrous cellulose, which is overcooked and partly dissolved, resulting in low yields of weak paper. Esparto, of which only the leaves are used, is an exception to these general statements, and yields a larger percentage of a

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strong, uniform fiber than the other members of this group. This class of materials, except esparto and bamboo, have, as a rule, short fibers and yield a small quantity of low-quality paper in comparison with the other groups, though some of them are not markedly different from woods in the latter respect.

For the past twenty years wood, chiefly spruce and poplar, has furnished the greater part of the paper made in this country. In 1907, 3,962,660 cords were used, yielding on an average 1,200 pounds of pulp per cord of wood, or a total of about 2,547,879 tons of pulp, which would make approximately 80 per cent of the paper and board annually produced in this country. The fibers of the soft coniferous woods are longer than those of the hard deciduous woods, the former being from 1 to 4 millimeters in length, while the latter are from 0.5 to 2.5 millimeters long. Spruce is more commonly used for making ground wood and pulp by the sulphite process, while poplar is almost exclusively reduced by the soda process. However, these woods may be treated by either process, depending on the cost of material, the location of the mill, etc.

Because of the exhaustion of the supplies of spruce and poplar within a reasonable distance of the mills, large quantities of other kinds of wood have been used for many years, not only for making board, bogus manila, and wrapping papers, but also for white papers, such as are used for news, book, and low-grade writing papers. Thus in 1907, 576,154 cords of hemlock, 78,583 cords of various kinds of pine, 43,884 cords of balsam, 66,084 cords of cottonwood, and 125,162 cords of other kinds of wood were used for making paper, the larger part being chemically treated. Among the pines, white, gray, loblolly, and longleaf yellow pines are being used, while among the miscellaneous woods employed are red and white fir, larch, aspen, gum, cypress, beech, birch, maple, basswood, buckeye, and chestnut; other woods which are available in large quantities are being constantly experimented with at various mills. Indeed, practically all woods may be used for paper making, such use being governed chiefly by the character of the wood supply near the mill.

The reasons that have made wood the cheapest and preferred paper-making material are clearly evident. They are low cost of raw material; ease of transportation and handling, particularly by machinery; freedom from dirt; uniform supply, and low digester requirements, as much more wood can be placed in a given digester than any other material. Further than this, mills could be built and operated close to the material. But the spruce and poplar forests contiguous to many of these mills are gone and they can no longer obtain their wood at the old price nor at a price that will enable them to compete with mills more recently built, which are still close to a wood supply. Neither can such mills, built to use wood advantageously, use other materials in competition with mills especially built and equipped for using those materials. The demand developed in the past few years and constantly growing is not primarily so much for new materials as it is a demand for wood at a price that will enable the poorly situated mills to compete with those more economically located with respect to this supply. This demand can only be met either by a large use of other woods or by planting and growing spruce and poplar.

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YIELDS OF PULP ON A MANUFACTURING SCALE.

The percentage yield of pulp and paper varies with different materials, and that from a given material varies with the severity of treatment to which it is subjected and the kind of paper made—the better the quality of paper the lower the yield. The yields usually obtained from the more commonly used materals are as follows:

	Per cent of paper obtained.
Rags	70–80
Esparto	40–45
Straw	40–50
Wood, sulphite	40–50
Wood, soda	40–50
Waste fibers, paper, bagging, scutching waste	75–90
Bamboo	40
Jute	50

POSSIBILITIES OF SOME MATERIALS NOT COMMONLY USED.

Besides a proper and conservative utilization of wood, the demand for paper stock may be filled by a more extensive use of other well-known and thoroughly developed materials. The use of these is controlled by the total cost of manufacturing from the cheapest substance an acceptable paper. As has been said, wood is the cheapest paper-making material now obtainable in large quantities. Therefore competing materials must produce paper at as low a cost at the point of consumption as wood does. The local use of other materials is feasible in sections which are distant from mills making paper from wood, as in the Mississippi Valley and in the coast regions of the Southern States, where the total cost of the papers now used is increased by the cost of transportation from distant points. In the never-ceasing search for materials many previously exploited substances are rediscovered from time to time and more or less transient interest taken in them. These materials belong, almost without exception, to the third class mentioned above and rarely possess sufficient merit to compete with those which have been employed regularly for many years, and which experience has demonstrated are the cheapest and best suited to the purpose.

BASIS OF VALUING NEW MATERIAL.

Paper making on an industrial scale is governed by the supply of raw material, the quality of paper it will make, and the total cost of manufacturing it into paper. In valuing a material, therefore, it is as necessary to know how much there is of it and how steadily this supply will be maintained as it is to determine the quality and quantity of fiber it yields, the cost of gathering, transporting, and converting into paper, and whether it can compete economically with other materials used in making the same grade of paper.

In forming an opinion as to whether there is a sufficient supply of the material to justify its use, the fact must be borne in mind, particularly if a mill is to be built, that it is not a question of a temporary supply, but of a continued supply, that there should be enough avail-

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able to meet all requirements for a number of years. Estimates on these points can only be formed after careful consideration and examination of the source of the material, taking into consideration whether it is naturally grown or cultivated, whether it is an industrial or agricultural waste, and whether it can be obtained in a satisfactory condition as to cleanliness. The value of the material for other purposes must also be considered; if this is greater than the paper-making value, it is useless to consider the subject further.

When it has been determined that the supply of the material is sufficient, samples should be examined in the laboratory The composition of the material and its adaptability to paper making, as well as a fairly accurate idea of the character of paper it will make and the cost of treatment, can all be determined by a laboratory examination, saving a great deal of experimenting in the mill, which is both costly and time-consuming. Such an examination can be made in any well-equipped paper laboratory and may be then followed by a mill test on a small scale. The results secured in these ways are rarely duplicated on a commercial scale, so that methods of treatment can only be perfected by experiments in the mill, and in all cases the results should be so confirmed before large sums are invested.

The laboratory examination indicates at once to which of the previously mentioned classes the materials belong and shows the quality and general character of paper which it will make. It also indicates the time and pressure required for the necessary cooking of the material as well as the quantity of chemicals needed in cooking and bleaching. From these data the cost of treating may be approximated. Moreover, the quantity of paper made by a given weight of the material is shown, and from the quality and quantity produced the market value of the paper can be estimated. Materials are valued by comparison with rags, which are the standard for the highest grades of paper, or with wood which makes a good grade of white paper, for the treatment of both of which the mills have been especially designed and located. It is, therefore, quite evident that materials which are expected to compete with these standard materials must yield a paper fully equal in strength, durability, cleanliness, texture, and appearance, and the finished paper must cost no more per pound.

The last factor in valuing a material is the total cost of making paper from it, and this is obtained by adding to the cost of making the expense of gathering and transporting the material to the mill. The yield per given area, cost of harvesting, difficulty of handling, relative bulk of the material, and cost of transportation must all be considered. Whether the waste is one which is always harvested, as are straw and sugar cane, or is usually left ungathered, as are cotton stalks, is a point which also affects the cost.

The relative expense of making paper from different materials can not be discussed in detail. It may be said, however, that the cost of chemicals per ton of paper is greater, as a rule, for wood than for other materials, and the time of cooking is longer. On the other hand, wood is cleaner, more can be placed in the digester, and the pulp requires less beating than longer and stronger fibers. What difference there is in the cost of mill treatment of the various materials, provided they pass through all the chemical processes and are

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used in the same grade of papers, is probably in favor of wood. Therefore only those materials which will yield an equal quantity of as good paper and which can be delivered at the mills at no greater cost can compete successfully with it. In other words, it is largely the cost of the raw substance rather than the mill treatment that determines the availability of paper-making materials. The relative cost per ton of paper on the basis of the assumed cost of the raw materials is shown by the following table:

Cost of raw material required to make 1 ton of paper at the stated prices for the raw materials.

Material.	Cost of material at mill per ton.	Yield of paper.	Cost of material per ton of paper.
	Dollars.	*Per cent.*	*Dollars.*
Wood	[a] 6	40	10 00
	[a] 8	40	13.25
Cotton stalks, straw, bagasse, cornstalks	2	35	5.75
	5	35	14.33
Flax straw	[b] 3	80	19.00
	[b] 5	80	32 50
Old bagging	16	80	20 00
Scutching waste	20	80	25 00
	40	80	50 00
Linters	20	80	25 00
	60	80	75 00
Waste paper	10	90	11 00
	40	90	44 50
Rags	20	80	25 00
	120	80	150 00
Manila and hemp rope	40	80	50 00
Esparto	20	45	44 50
Hemp fiber	40	80	50.00
Cotton	100	90	111.00

[a] Per cord. [b] Based on 400 pounds of fiber per ton.

Greater cost of production alone, due chiefly to greater cost of raw material or coupled with lower quality of product, renders impracticable the use of many wild and cultivated plants. Thus an initial cost of straw of $5 per ton at the mill prevents its competing with wood at $8 per cord for making white paper. The same statement holds in a general way for marsh grasses, sugar-cane bagasse, cornstalks, cotton stalks, etc., from all of which acceptable papers can be made, but at a greater cost than from wood under present conditions.

One other factor should be considered, namely, the cost of paper at the point of consumption. There are undoubtedly localities where, because of their distance from the commonly used raw materials, the unusual materials can be and are used to a limited extent to supply local demand. This is particularly true of the lowest grade of paper, such as box boards and pasteboard, for which straws of all kinds are suitable. The conditions under which utilization, as far as white papers are concerned, is possible must be very carefully considered for each particular case, but are of course chiefly controlled by the difference between cost of production plus transportation on the one hand and cost of production at the point of consumption on the other.

Finally, from a consideration of the foregoing facts, it is evident that the whole subject of new materials is a question of their relative cost rather than a technical one as to their paper-making possibilities. As has been said, broadly speaking, any fibrous vegetable matter will make paper, but its use for this purpose is controlled by the value

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and cost of the product. It is therefore true that with a rise in the price of the materials generally employed, others will be more largely used and most profitably when obtainable close to the paper mills. For these reasons consideration should be given to some of the proposed materials.

UTILIZATION OF MILL AND FOREST WASTE.

With the present methods of removing bark, rotten wood, and knots, the utilization of mill wastes for making any but low-grade colored papers or boards seems impracticable. If all suitable material is used, as it should be, for making laths and other small articles, the waste from a mill would be too small both in size and quantity to be profitably handled as a paper material. There are, however, large quantities of wood left in the forest which is of sufficient size to be used advantageously by the methods now in vogue. While it is impossible to give an accurate estimate of the material thus available, it is probably safe to say that fully 25 per cent of the tree which has been cut for lumber is still available for paper making and, when properly graded, offers no particular difficulty in treatment at the mill. On this basis fully 12,000,000 cords are available annually as waste from the lumber industry, and furthermore it is obtainable in large quantities over small areas, and, being a waste of the lumber industry, can doubtless be obtained at a lower cost than wood direct from the stump.

UTILIZATION OF STRAWS AND WILD GRASSES.

Straws and other grasses contain compound celluloses which exist both in the form of fiber and of nonfibrous cellular material, and yield from 30 to 50 per cent of white paper. These substances are likely to contain much dirt, collected from the ground, which is difficult to remove; if any remains, it increases the cost of treatment and mars the quality of the paper. Cereal straws were generally employed for the cheaper papers before wood was used, and even now are used extensively for making papers and board. As has been said, the cost of making a good quality of paper from these materials, except possibly under exceptional conditions, is greater than from wood, but they are suitable for making cheap wrapping papers and boards when the proximity of the mills to the raw material and increased yield compensate for somewhat greater original cost of raw material or greater cost of treatment.

Special mention should perhaps be made of rice straw, with which some experimental work has been done recently in this country. Examination of the fiber and of pulp made from the straw indicates that the paper made from it is similar in all respects to paper made from the more commonly used cereal straws, and any advantage which this material may possess over the latter is due to local conditions under which it is produced. In the tide-water regions of the Southern States, far from the chief points of paper production, paper may possibly be made from the large quantity of rice straw, now wasted, for less than it can be made in the present paper-making centers and transported to southern markets.

With the straws may properly be included the "herds" of hemp, and the broken stems produced in "breaking out" this fiber, as well

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as bagasse and cornstalks. These latter materials contain more cellulose in the nonfibrous cellular forms than the straws of oats, wheat, rice, etc., and for this reason are not so well adapted to certain purposes. It may be said, however, that as the high percentage of cellular cellulose gives that property of "wetness" required in certain cases, and only obtained from the better known materials by prolonged beating at great expense, the former may, with better knowledge of the use of materials for definite purposes, be used for mixing with long fibers to give strength or hardness. Indeed, it seems quite probable that some of the materials now rarely used may later be utilized by mixing with the standard articles to impart special characteristics or to secure certain effects at less cost than is now possible.

Many years ago Routledge demonstrated that bamboo, which from the paper-making point of view may be classed with straw, is well suited for making papers of medium quality like those produced from wood. Later work has confirmed this conclusion, but the material even in subtropical countries, where it grows luxuriantly and where labor is cheap, is used but little, and it is evident that the cost of standard materials must rise higher before bamboo will play any extensive part in paper making. The large annual growth of bamboo has called attention to it as a suitable plant to grow especially for paper-making purposes, but while bamboos are successfully grown in this country it seems probable that a more extended use of the native-grown crop will precede its cultivation for making paper in this country, particularly as long as a greater profit can be made per acre from other crops.

BAST FIBERS.

Waste flax fiber.—In the northern Central States, chiefly in Michigan, Minnesota, and the Dakotas, about 3,000,000 acres of flax are grown annually, practically all for the seed, while the straw is allowed to rot or is burned in the fields. One ton of this straw will yield about 400 pounds of fiber—that is, at the rate of 1 ton of straw per acre, 600,000 tons of fiber suitable for making 480,000 tons of strong, high-quality paper. Small quantities of straw are now being delivered to the tow mills at from $2.50 to $3 per ton, and doubtless practically all of it can be secured at $5 or $6 per ton. As the fiber is one of the best paper-making materials, it is, even at the highest mentioned price, a cheaper raw material for strong wrapping paper than old manila and hemp rope, and if it can be obtained free of the seed, which, when present, produce grease spots in the paper, the fiber will command even a higher price for fine white paper. Commercially, the presence of seed has been a difficulty in the utilization of the fiber for fine papers.

Malbón or malva castilla fiber.—Another bast fiber which may be mentioned is that of Malbón or malva castilla, a plant which grows wild over large areas from southern California to southwestern Mexico, and is used by the Indians in making cordage, ropes, and coarse fabrics. Examination of the fiber in this laboratory indicates that it will yield about 60 per cent of pulp. The individual fibers are from 0.75 to 6 mm. long, averaging 2 mm., and are suitable for making a strong white paper.

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MISCELLANEOUS WASTES.

Other materials which have become prominent enough to receive mention are cotton and tobacco stalks, agricultural wastes occurring in large quantities in the Southern States. Low-grade tissue and common wrapping papers have been made from these sources. The fiber from these materials is from 0.4 to 3¼ mm. long, averaging 1¼ mm., while the yield of paper is approximately 40 per cent. Owing to the fact that the yields of these materials per acre is small, that they are widely distributed over large areas, and that the former is never brought together in harvesting the cotton crop, the cost of gathering and transporting them to the mills would probably be greater than for many other materials, such as the cereal straws, forest wastes, or flax straw, though at the same price per ton the raw material for a ton of paper costs approximately the same for all of these wastes. It is probable, therefore, that they will not find extended use until more economical materials have been exhausted, unless, indeed, it can be shown that in limited areas they can be employed for local markets more economically than paper made from other materials and transported to those markets.

Beet pulp from which the sugar has been extracted has been suggested as a paper-making material, but as this substance possesses practically no fiber, much less even than sugar cane or cornstalks, it is not suitable for this purpose.

CONSERVATION OF PAPER-MAKING MATERIALS.

It is evident that more attention must be given in the future to maintaining sufficient supplies of materials to meet the legitimate demands of the paper-making industry. This is an agricultural and economic problem which may be met in several different ways, the essential consideration being that it shall be solved to the greatest advantage of the country at large. It is customary to suggest that other materials than those now generally employed must be used, and particularly that some new material or process must be discovered or that a crop must be especially grown for the purpose. There are, however, a number of ways in which the materials now best known may be made to satisfy still greater demands, some of the more important of which may properly be discussed here.

USE OF LARGER QUANTITIES OF SCUTCHING WASTES.

In preparing textile fibers for use there is much waste in separating the fiber from the body of the plant tissue, and further waste in getting the fiber in proper condition for market. The fiber thus lost may be termed "scutching waste," and while no definite figures can be given as to the quantity of such waste, as most of it occurs in barbarous or semicivilized countries, it has been variously estimated at from 25 to 50 per cent. Assuming the lower figures, the waste from the jute, manila, and sisal imported to this country would equal, approximately, 150,000 tons annually, and would make 120,000 tons of high-grade paper.

The scutching waste from the hemp industry, though perfectly suitable for paper, is too small in quantity to play any material part in paper making, and the growing of it primarily for this purpose is

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impractical, owing to the fact that hemp, even at the rate of 2 cents per pound, makes the paper cost as much as that made from medium-grade rags.

LARGER USE OF WASTE TEXTILES AND WASTE PAPER.

Quantity and value of available wastes.—Approximately 2,030,000 tons of cotton, flax, hemp, jute, manila, sisal, and other vegetable textile fibers are made into fabrics annually in this country, and all of this, sooner or later, in the form of cuttings, waste from the manufacturing processes, and rags, finally finds its way into other industrial uses or is destroyed. Statistics show that approximately 400,000 tons of this kind of material, 200,000 of which are imported, ultimately reach the paper mill, leaving about 1,800,000 tons of fabrics, practically all of which is destroyed. This is sufficient to make 1,440,000 tons of the very best paper. Of course it is not possible to recover all of this material. There is some loss in the manufacturing processes through which it passes and a great loss due to wear, but it is a conservative estimate to say that 1,000,000 tons of paper stock could be secured annually from this source alone, and at 1 cent per pound (rags sell at from 1 to 6 cents per pound) would be worth $20,000,000.

This 1,000,000 tons of waste textiles would make 800,000 tons of the strongest, most durable, and best paper, or more than enough to supply all the book, cover, plate, writing, high-grade wrapping, and blotting paper and bristol board now made in this country. There is a sufficient quantity of waste textiles to supply all demands for fine paper for years to come, and probably such papers will continue to be made from these materials, as no others which can compete with rags in cost are now known.

More than 3,000,000 tons of paper are now made annually in this country, of which fully 80 per cent, or 2,400,000 tons, becomes waste material in three or four years. Of this, about 25 per cent, or 588,000 tons, is again used in the form of new paper cuttings and trimmings and old paper for making new. Here also we estimate that fully 1,000,000 tons of raw material which would make 900,000 tons of paper could be readily saved from waste at a cost for collecting that would permit its use, as most of it is to be found in the cities and towns in the form of old books, writing paper, news paper, wrapping paper, and pasteboard. Most of this waste is not suitable for high-grade papers, but could readily be used for wrapping, cover, and blotting papers, and boards. The wholesale price of such paper ranges from $2 per hundred pounds for new high-grade cuttings to $1 for new white paper, and from 65 cents for folded news paper to 20 cents per hundred for common scrap paper of any kind. Valuing the waste paper at 0.5 cent per pound, the 1,000,000 tons of paper now wasted that could be saved is worth $10,000,000 per annum, and would make all of the building, bagging, cover, blotting, and miscellaneous papers, and all the paper board now produced. Though the cost of raw material per ton of paper is slightly greater at the above valuation than when produced from wood, the cost of manufacture from waste paper is much less, so that the product made from waste paper is fully as cheap as that from wood.

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Gathering and grading.—A more general appreciation, particularly among the country people, of the market value of rags, old rope, and waste paper of all kinds would increase largely the supply of paper stock and add considerably to the income of the people. The value for paper making of the waste textiles of the country is greater than the value of the rye crop, one-twentieth that of the wheat crop, one-third of the total value of the products of the saddlery and harness industry, half as great as that of the hardware, and as great as that of the fur-goods industry. Rags to the value of $9,000,000 annually are now used for paper making and about three times this quantity could probably be secured, which, at the same valuation, would distribute approximately $27,000,000 among the people; $7,000,000 worth of waste paper is used each year in paper making, but it is estimated that three times this amount can be saved, distributing $20,000,000 per year among the people. It is evident, therefore, that the value of the waste textiles and paper annually destroyed is large and that if these can be gathered profitably, their use will serve the double purpose of producing good paper and of conserving other materials.

The various grades of rags with their current prices are shown in the following table:

Market grades for rags, with current prices.

	Cents per pound.
New shirt cuttings, No. 1	5½–6
New shirt cuttings, No. 2	4 –4¼
Fancy shirt cuttings	3¾–4
New blue cotton	3 –3¼
New mixed cottons	1¼–1½
Old linen:	
White	4½–5¼
Gray	2½–4
Colored	1¾–2¼
New black cotton:	
Soft	1½–1¾
Mixed	1¼–1½
No. 1 white, old, clean	2¾–3
Soiled white:	
Street	1½–1¾
House	1¼–1½
No. 2 New Yorks	1⅛–1¼
Street seconds	⅝–¾
Thirds and blues	1⅛–1¼
No. 1 satinette	1 –1⅛
Mixed satinette	⅞– 1
Tailors' seconds	⅝– ¾
Hard black carpets	⅝– ¾

Grades of rags.—Inspection of the preceding table shows that all rags do not sell for the same price. White rags will bring from 2 to 5 cents per pound more than colored ones, clean rags will sell from one-half to 2 cents per pound more than those that are soiled, and new rags are worth from 1 to 3 cents per pound more than old ones. The paper maker does not cook a mixture of old and new, clean and soiled, white and colored rags together but wants them properly sorted not only according to color, cleanliness, and amount of wear, but also according to the materials from which the fabrics were made, as cotton, linen, hemp, etc. Unsorted rags, even though they consist largely of the best grades, sell at low prices, and therefore the seller, in order

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to secure the highest price, should carefully sort them. The higher price of clean rags may even justify washing those that are soiled.

Grades of waste paper.—Different kinds of waste paper also sell at different prices, and as mixed paper sells at a comparatively low price, it is profitable to grade it. The following table shows the market grades for waste paper in this country, with current prices of each:

Market grades for waste paper, with current prices.

	Price per 100 pounds
No. 1 hard white	$2.10–$2.15
No. 2 hard white	1.80– 1.90
No. 1 soft white	1.45– 1.50
No. 1 colored	.65– .70
No. 2 colored	.45– .55
Flat stock	.75– .80
Crumpled sheet stock	.70– .75
Book stock	.55– .65
Solid ledger stock	1.40– 1.50
Ledger stock	1.20– 1.25
No. 1 white news	1.05– 1.10
White paper	.90– 1.00
Extra new manila cuttings	1.25– 1.30
New manila cuttings	1.05– 1.15
No. 1 old manila	.65– .70
No. 2 old manila	.40– .45
New box board chips	.35– .40
New straw chips	.40– .45
Bogus paper	.50– .60
Mill wrappers	.50– .60
Strictly new overissue news	.55– .65
Strictly folded news	.40– .45
Broken news	.25– .30
No. 1 mixed news	.25– .30
Straight straw and other boxes	.35– .40
Mixed straw and other boxes	.30– .35
No. 1 mixed papers	.20– .35
Common papers	.15– .20

As with rags, new, clean, white materials command higher prices than old, soiled, printed, or colored materials. The kind of fiber of which the paper was made also affects the price, as is shown by the quotation of ledger cuttings as compared with No. 1 book stock, the former as a rule being made of rags, while the latter is largely chemical wood. Therefore in order to secure the highest market price, waste paper should be graded as shown by the table.

IMPROVEMENTS IN THE QUALITY OF PAPER.

One of the most striking points brought out in the work of this laboratory in the examination of paper is that the quality of any class is seldom as good as the materials and the technical skill of the maker can produce. The several processes of paper making frequently are not conducted in such a way as to produce the strongest, most durable, and best appearing papers of a given kind. This is particularly true of papers which should have strength or durability, many of which are overloaded with clay, which weakens them, or are not properly beaten and run to give them good formation and the maximum strength of the material. This is found especially in wrapping papers and boards whose value for practical purposes depends on their strength and pliability. Thus 24 by 36 inch paper,

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weighing 65 pounds per ream of 500 sheets and made from chemical wood fiber, should easily have a strength of 45 pounds (Mullen), and, indeed, by proper manipulation of the processes such a paper can be made with a strength of 50 pounds. As a matter of fact, however, most 100-pound papers have a strength of only 45 pounds or less per square inch, a result due to the use of ground wood or to insufficient preparation of the stock. Again, in the case of ordinary print paper, well made from chemical wood, a 24 by 36 inch paper, weighing 39 pounds per ream, and having a strength varying from 15 to 20 pounds, is more resistent to folding, as opaque, as strong, and as desirable in every way as many 60-pound papers. Often other desirable qualities are sacrificed to secure temporary appearance and "feel," while the strength is obtained by increasing weight, instead of by a better preparation of stock, as should be the case.

REDUCTION OF WEIGHT AND BULK OF PAPERS.

All classes of paper now made are almost invariably needlessly heavy and thick. The purpose for which paper is employed, whether it be for printing, writing, or wrapping, can be as well accomplished in nearly all cases, both from the utilitarian and the æsthetic point of view, by lighter and thinner paper, as suggested in the preceding section, if greater care in manufacturing is taken. The strength and quality are improved at the same time, and the consumption of paper reduced thereby from 15 to 50 per cent, to the advantage and profit of the consumer. Thus the employment of 60 and 80 pound book papers, or even of 50-pound paper, is a totally unjustified waste in most cases, as every purpose can be accomplished by 30 and 40 pound papers. Much lighter and thinner writing and wrapping papers can be employed in the vast majority of cases with quite as satisfactory results as are obtained from papers that weigh 80, 100, and 120 pounds per ream.

The production of lighter and thinner paper is important not only to the nation, but to the individual as well, since not only are materials thus conserved, but better, and frequently cheaper, papers are secured. For example, ordinary printing paper weighs from 45 to 80 pounds per ream (24 by 36 inches), but 35 to 50 pound papers are made from the same materials, which are superior in every particular, a saving of from 22 to 40 per cent in weight. Wrapping papers are of all weights, but many 25 or 50 pound papers are stronger than 50 or 100 pound papers, so that often a saving in weight of as much as 50 per cent can be made. It is true that lighter, thinner, and better papers cost more per pound, but a pound contains more sheets. Paper is sold on the basis of weight, but is used on the basis of area, and a ream of each serves the same purpose. For example, the 35-pound paper mentioned above sells at 4.23 cents per pound, while the 45-pound paper sells at 3.7 cents. Therefore a ream of the former costs $1.65; of the latter, $1.77. Again, bogus manila paper made largely of ground wood (low grade) is quoted at 1.75 cents per pound; No. 1 manila (high grade) is quoted at 5.5 cents per pound, and No. 1 sulphite manila (medium) at 4.75 cents per pound. A 100-pound bogus manila has the same strength as a well-made 35-pound No. 1 manila or a 65-pound No. 1 sulphite manila. A ream of each costs, then, $1.75, $1.92, and $2.92, respectively.

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The paper of highest quality and price costs but little more per ream than that of the lowest quality and price and much less than the medium grade. Further, the cost of transporting, handling, and storing heavy bulky paper is greater than for the lighter ones. It is therefore believed that not only will raw materials be conserved, but the cost of the total quantity of paper used per year will be less when it is made lighter and of better quality. On the whole it is a conservative statement that the quantity of paper now used in this country can readily be reduced 25 per cent by making from the materials now employed better paper and by using no heavier paper than is required by the service to be performed.

THE NECESSITY FOR GROWING PAPER-MAKING MATERIALS.

It has frequently been suggested that materials be produced for paper making just as any other farm crop is grown, and it is worth while to inquire into the necessity for doing this. Summarizing the foregoing conservative estimates, there are annually produced in the United States agricultural and industrial wastes furnishing raw materials in much greater quantity than can be consumed in paper making for many years to come.

Estimates of wastes suitable for paper making produced annually.

Material.	Waste.		Yield of paper.
	Quantity.	Value.	
	Tons.		*Tons.*
Waste textiles suitable for papers of the highest quality and strength	1,000,000	$20,000,000	800,000
Flax fiber suitable for the best and strongest paper	600,000	18,000,000	480,000
Forest waste from lumber industry suitable for medium and low grade paper	[a] 12,000,000	60,000,000	5,000,000
Waste paper suitable for high quality and lowest quality	1,000,000	10,000,000	900,000
Cereal straws suitable for medium quality paper and boards	70,000,000	350,000,000	28,000,000

[a] Cord

No consideration is given here to the large quantities of marsh and other wild grasses, of bagasse, and corn and cotton stalks, which are also available, but not as desirable technically as those mentioned, nor to the bast fiber of Malbon and other bast fibers which occur in large quantities. While it is true that not all of the above-mentioned materials could be acquired for paper making, owing, for example, to their greater value to those who produce them for other purposes, it is evident that there is no danger of the immediate exhaustion of such raw materials even on the present basis of production of paper.

The industrial conditions that have made wood the chief raw material will undoubtedly continue to encourage its extensive use for many years, so that the price of wood will largely fix the price of any competing material. Manifestly no comparisons in dollars and cents can be made, and it will probably be sufficient to say for the guidance of those interested in growing paper-making plants that the problem primarily resolves itself into a financial one. On the one hand, one must produce a material which can successfully compete in quality and cost with other available paper-making materials. On the other

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hand, the crop produced must be as profitable as other farm crops. If paper can not be made from the new crop as cheaply as from other materials, the mills will not buy it; and if it will not yield as large profits as other farm crops, the farmer will not raise it. It is believed that no plant so far suggested will fulfill these conditions at the present time, except as previously suggested for local consumption where transportation greatly increases the cost of paper made from the commonly used materials.

CONCLUSION.

All fibrous vegetable material from whatever source derived can be used for making paper. The utility of a particular material for this purpose is governed chiefly by the cost and value of the finished paper as compared with the product made from other materials.

Without altering quality, the weights of most papers can be reduced from 10 to 20 per cent, and by decreasing weight and improving quality the amount of paper now consumed can be reduced from 10 to 50 per cent, varying with the kind of paper. It is estimated that the quantity of paper now used in this country can be reduced about 25 per cent by improving its quality and reducing its weight. In other words, 2,250,000 tons of paper will do equally well the service now performed by 3,000,000 tons.

The growing demand for paper-making materials may be supplied by the more conservative use of those which long years of practical paper making have demonstrated are well suited to the purpose. When thus used there are ample quantities to meet normal requirements for many years.

Larger quantities of waste textiles and paper should be employed for paper making. It is estimated that 2,000,000 tons of such wastes, worth approximately $30,000,000, can be secured annually in this country. This material would produce 1,700,000 tons of paper. If this were used, the quantity of wood annually used for paper making could be reduced to about 2,000,000 cords per year.

The cheapest known raw material for medium-grade paper which can be obtained in large quantities is wood. It is highly important to practice conservative methods in its use. Therefore the great quantity of waste from the lumber industry should be utilized for paper making wherever possible. It is probable that such "new" materials are the cheapest which are available.

There are large quantities of cultivated and wild straws and grasses and of flax fiber available which can be used for paper making. Economic agricultural considerations indicate that the cultivated straws should only be thus employed when the woods and textile and paper wastes can no longer supply the demand or are too costly. Flax fiber, when it can not be put to more important uses, should be employed in paper making.

Finally, when all of these supplies are no longer adequate and when economic conditions are such as to justify such innovations, there are suitable quick-growing materials which may be produced primarily for paper making.

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PULP AND PAPER INVESTIGATION HEARINGS

REPORT

FEBRUARY 19, 1909

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[Extract from Congressional Record of Friday, February 19, 1909.]

PULP AND PAPER INVESTIGATION.

Mr. MANN. Mr. Speaker, I ask unanimous consent to present and have read at this time the report of the Select Committee on Pulp and Paper Investigation.

I wish to say a word, Mr. Speaker. In presenting this report, which is a unanimous report of the committee, I only wish to say that in our opinon it will meet with the approval of both the Republican and Democratic members of the Committee on Ways and Means; with the approval of the publishers of the country interested in the subject on one hand and of the mill owners and paper manufacturers on the other hand; that it will meet with the approval generally of the people of the United States on one side of the line and of the people of the Dominion of Canada on the other side of the line.

Mr. SIMS. Mr. Speaker, as a minority member of this committee I wish to state that the investigation has been just as full as hard work could make it, hard work mentally and physically and for many months' duration. I want to say on behalf of the chairman [Mr. Mann], the gentleman from Illinois, that in making this investigation so far as it was possible to determine from the manner of the investigation I could not tell whether he was a protectionist or a free trader, whether he was a Democrat or a Republican, because he has strived to get at the facts and let the facts speak for themselves. I want to say on the part of those who represent the idea and contention of lower duties on pulp and paper that we feel that we have gained a great victory. Pulp will now come in free, provided Canada does not bar it by her own act. The duty on news-print paper used in this country has been reduced by this recommendation, if adopted by the Committee on Ways and Means, 66⅔ per cent, from $6 a ton down to $2 a ton, which does not exceed 5 per cent ad valorem, which is a very reasonable revenue tariff. The duty left on chemical fibers and paper made from them is nothing more than a reasonable revenue duty, and I hope, Mr. Speaker, that the great Committee on Ways and Means will be enabled to see this matter as we have. We have tried to do justice to all interests and we feel if our recommendations are adopted that it is about the best possible solution which can be made. Mr. Speaker, I recognize the great value of a unanimous report, and I think this is a report that any Democrat could indorse, and which I hope no Republican or protectionist will repudiate. [Applause.]

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WOOD PULP AND PRINT PAPER INVESTIGATION.

REPORT OF SELECT COMMITTEE ON PULP AND PAPER INVESTIGATION.

The Select Committee appointed under House resolution No. 344, to make investigations concerning pulp wood, pulp, and paper, beg leave to report as follows:

Papers are made from a large number of different materials originating from the fibrous portions of plants. The materials used are, generally speaking, in the nature of waste products. Linen and cotton rags, old papers of various sorts, straws, and the products of the forests not commercially profitable for the manufacture of lumber furnish in the main the raw materials from which paper-making pulp is manufactured. Linen rags in the main constitute the material from which the highest grades of paper are made, cotton rags from which lower qualities of paper are made, and different kinds of wood producing different characters of wood pulp out of which lower grades of paper are manufactured. The refuse material, such as straw, from various of the annual farm crops are also used to a large extent in the production of low grades of paper and strawboards.

There are three processes generally used in this country for the production of pulp or fiber from wood. These are the ground-wood process, sulphite process, and the soda process. The cheap production of the lower grades of paper depend largely upon the cheapness of the ground-wood process. Practically only one kind of tree is used to much extent in the ground-wood process, and that is the spruce tree, including its various varieties.

The ground-wood process consists in pressing a 2-foot stick of spruce wood by hydraulic pressure against a revolving grindstone, the power used being entirely water power capable of operating under favorable conditions twenty-four hours per day. By this process about a ton of ground wood can be obtained from a cord of spruce wood.

The sulphite process consists of a chemical treatment of chipped spruce or hemlock wood with sulphurous acid, by which 1,000 to 1,200 pounds of sulphite fiber may be obtained from a cord of wood.

The soda process consists of the chemical treatment of chipped woods of various kinds, including both soft and hard woods, with caustic soda, by which process about the same number of pounds of soda fiber can be produced from a cord of wood as in the case of the sulphite process.

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The ground-wood process is by far the cheapest process known for producing pulp from raw material, and, in addition to being the cheapest process, it produces a larger quantity of pulp than can be produced by any other process from raw materials.

The cheaper grades of paper are usually produced by mechanically mixing ground wood pulp with other kinds of pulp in different degrees of percentage. The ordinary news print paper is generally produced by the use of about 80 per cent of ground wood and about 20 per cent of sulphite fiber, though the exact percentages differ in different papers and in different mills, it depending somewhat upon the character of the paper to be produced and somewhat upon the character of the ground wood and the sulphite fiber used. Whether other kinds of wood besides spruce can be profitably used for the production of cheap print paper is a matter concerning which there is some difference of opinion, but as a matter of fact practically all of the ground wood manufactured to-day is manufactured by the aid of water power from the different varieties of spruce with a slight admixture of balsam.

So far as the investigations of the committee can indicate, it would seem that the production of news-print paper or the other very cheap grades of paper are to-day dependent upon the continuation of cheap ground wood produced from spruce trees, and that condition is likely to continue to prevail in the future. The amount of spruce forests throughout the world is, of course, limited. The largest spruce forests are in the United States, Canada, Norway, and Sweden. Spruce is used not only for the production of ground wood, but is also the material generally used for the production of sulphite fiber. Not only is this the case, but the best spruce trees of saw-log size are worth more for manufacture into lumber than they are for manufacture at present prices into pulp or fiber.

The amount of spruce consumed in the United States east of the Rocky Mountains during the year 1907, the last year for which we have complete reports, was about 1,260,000 cords for ground wood, about 1,420,000 cords for sulphite fiber, and about 1,300,000,000 feet b. m., equal to about 2,600,000 cords of lumber, making a total of about 5,280,000 cords. The amount of spruce imported from Canada into the United States for paper making during the fiscal year ending June 30, 1908, is stated at about 920,491 cords. The amount of standing spruce in the United States east of the Rocky Mountains is variously estimated with very rough estimates or guesses at about 35,000,000,000 feet, equal to about 70,000,000 cords, and the total annual production is estimated at about 770,000,000 feet, or about 1,540,000 cords. The amount of standing spruce in the Dominion of Canada can not to-day be safely estimated with any considerable degree of accuracy based upon our present knowledge.

The cheapness of ground wood depends upon cost and convenience of spruce wood, water power, established mills, and transportation. It is quite evident that there is not to-day enough spruce forests standing in the United States to furnish a future constant supply based upon the present methods of manufacture, the probable needs of the future, and the present methods of forest conservation and waste.

Your committee believe and recommend that both the General Government and the state governments, within the limits of their respective jurisdictions, should endeavor to encourage the produc-

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tion of spruce forests, both by giving a more adequate fire protection and by exempting as far as can be young forests from the ordinary rates of taxation. If adequate protection can be given from the danger of fire losses and young spruce forests can be exempted from taxation, private owners may be led to use lands which would often otherwise run to waste for the production of forests. The benefit to be obtained from continued production of spruce in the future will not go only to those who may own the forests, but the benefits through the cheapness of paper will be received by the entire population. A private owner can not in general afford to grow a crop which will not mature within from fifty to a hundred years, paying taxes each year upon the value of the ground and the crop and running the risk all the time of having his entire crop swept away by a forest fire started without his fault and against which his efforts are in vain. There should be organized fire protection in every considerable forest in the United States.

It would be quite possible for the National Government to start large tracts of young spruce forest. If our country should be shut off from the utilization of its present water powers and mills in grinding spruce wood imported from Canada, it would, we think, be the duty of the General Government or of the different state governments to organize, own, protect, and control large areas of young spruce forests, ready to furnish an adequate supply of spruce wood when the existing forests shall have in the main been exhausted.

It is highly probable, however, that there exists sufficient spruce forests and spruce forest lands in the United States and Canada which, if protected by any reasonable conservation and reproduction methods, will furnish a sufficient supply of spruce wood for paper making for all time to come.

We believe and recommend that the tariff on ground wood coming into the United States be removed and ground wood admitted free under certain conditions. Practically, the question relates in the main to our relations with Canada. In some of the Provinces of Canada pulp wood can not now be exported from the Dominion if cut upon the public lands and in other Provinces there is a higher charge for pulp wood cut upon the public lands if such pulp wood is to be exported. We, therefore, recommend that in revising the tariff there be inserted the following schedule:

"Mechanically ground wood pulp, one-twelfth of one cent per pound, dry weight: *Provided, however*, That mechanically ground wood pulp shall be admitted free of duty from any country, dependency, province, or other subdivision of government which does not forbid or restrict the exportation of or impose any export duty, export license fee, or other export charge of any kind whatsoever, either directly or indirectly (whether in the form of additional charge or license fee, or otherwise), upon mechanically ground wood pulp or wood for use in the manufacture of wood pulp.

"Chemical wood pulp, unbleached, one-sixth of one cent per pound, dry weight: bleached, one-fourth of one cent per pound, dry weight: *Provided*, That if any country, dependency, or province shall impose an export duty or other export charge of any kind whatsoever, either directly or indirectly, on pulp wood exported to the United States, the amount of such export duty or other export charge shall be added

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as an additional duty to the duties herein imposed upon wood pulp when imported from such country, dependency, or province."

It can not be expected that Canada or its Provinces will remove the present discriminations as to the exportation of pulp wood to the United States or cease from adding additional discriminations unless we also lessen the tariff on the cheap paper which is made mainly from spruce wood.

The United States is amply able to protect its future supply of cheap paper and its future supply of spruce wood by undertaking the production of new spruce forests and the conservation and reproduction of existing spruce forests, but a very large proportion of the spruce forests of Canada, consisting of small, black spruce timber, is practically valueless for manufacture into lumber and profitable to cut only for the manufacture of ground wood and cheap paper. It would seem desirable, both for our own country generally, for the pulp and paper mills of our country now largely dependent upon the Canadian pulp-wood supply, as well as a matter of neighborly courtesy and interest, if we endeavor to utilize in our country with its great reading population those Canadian forests of spruce which if shut out of our country would be of little value; and we believe and recommend that in the long run it will be mutually profitable, both to the publishers and other users of cheap paper in the United States, to the mills producing print paper, to the owners of American spruce forests, to the owners of the Canadian spruce forests, and to the mutual good feeling and respect of our two countries, if a considerable reduction be made in the tariff on the cheaper grades of print paper, dependent, however, upon receiving from Canada (so far as the supply comes from her) the removal of all discriminations now existing in that country or its provinces against the exportation of pulp wood into the United States and the prevention of future discriminations in the exportation of either ground wood or paper. We therefore recommend that in the revision of the tariff the following schedule be inserted:

"Printing paper, unsized, sized or glued, suitable for newspaper and books, valued at not above two and one-fourth cents per pound, one-tenth of one cent per pound; valued above two and one-fourth cents and not above two and one-half cents per pound, two-tenths of one cent per pound; valued above two and one-half cents per pound and not above three cents per pound, five-tenths of one cent per pound; valued above three cents and not above four cents per pound, six-tenths of one cent per pound; valued above four cents and not above five cents per pound, eight-tenths of one cent per pound; valued above five cents per pound, fifteen per centum ad valorem: *Provided*, That if any country, dependency, or province shall impose an export duty or other export charge of any kind whatsoever upon pulp wood, wood pulp, or printing paper, exported to the United States, or if any country, dependency, or province forbids or restricts the exportation of pulp wood, wood pulp or paper to the United States in any way there shall be imposed upon printing paper, when imported from such country, dependency, or province, an additional duty of two-tenths of one cent per pound, if valued at two and one-half cents per pound or less, and in addition thereto the amount of the export duty or other export charge imposed by such country, dependency, or

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province upon the printing paper imported from such country into the United States."

The present tariff on print paper valued at 2 cents per pound or less is three-tenths of 1 cent a pound; valued at over 2 cents a pound and not over 2½ cents a pound, four-tenths of 1 cent a pound. The schedule we propose is one-tenth of 1 cent a pound on paper valued at not over 2¼ cents a pound, and two-tenths of 1 cent a pound on paper valued above 2¼ cents and not above 2½ cents per pound. This in the main is a reduction in the tariff on ordinary newsprint paper from $6 a ton to $2 per ton.

The retention of a duty of one-tenth of 1 cent per pound, as suggested, is justified both on the principles of a tariff for revenue and a tariff for protection. It is not desirable to strike down or injure the present paper mills in the United States. To do so would not only be very expensive to the present paper-mill owners and employees, but would, probably, in the future enhance the cost and price of paper. The duty proposed is about equal to the additional cost of labor in the United States and the additional cost of materials used by the paper mills caused by other tariff provisions.

The committee also recommend that the Bureau of Plant Industry make investigations in the procurement and breeding of annual and perennial plants in the endeavor to find either some new plant or some existing plant which through breeding to that end can be profitably used for the commercial manufacture of paper, not believing, however, that it is possible to find or produce any annual or perennial plant which can successfully compete with spruce ground wood in the production of the cheaper grades of print paper. We recommend also that the Forest Service investigate the question of the production of ground wood and sulphite fiber from other kinds of wood than those now used. It is not unlikely in our opinion that by a difference in the mechanical treatment, or by some other slight treatment, it will be possible to successfully manufacture a good cheap grade of news printing paper by the ground-wood process from other than spruce.

That there is an enormous waste in the forests is conceded by everybody familiar with the facts. Much of what would otherwise be waste is now absorbed in pulp manufacture. A large proportion of the spruce wood used in the United States for ground wood would be valueless if not so used, and the same is true to a much greater degree in the case of woods used for sulphite and soda fiber. In many places in the eastern and southeastern States, and in some cases in western States, practically all of the waste from lumbering is saved and used in the production of either sulphite or soda fiber. This saving should be encouraged in every way practicable. In some of the eastern mills, where the trees are cut into saw logs and manufactured into lumber, the slabs and edgings, limbs and tops, in the proper kinds of wood, are used in the manufacture of sulphite, and the same is true of other kinds of wood which are manufactured into soda fiber. The manufacture of sulphite and soda from fibers is not overly profitable under existing conditions, and as the main competition with these products is from mills in Europe, where the labor is much cheaper and many of the articles which are used in the processes are much cheaper, we do not think that the present rate of duty on chemical pulp, consisting in the main of sulphite and soda fiber and also a sulphate fiber, should

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be disturbed, and in the recommendation we have made above we have recommended that the existing rates of duty upon chemical pulp should not be disturbed as they now exist.

Your committee has taken a vast amount of testimony, which is acknowledged to be of great benefit in the pulp and paper trade. We have collected a large amount of information which, both at present and in the future, will prove of immense service to those who are interested in the use or production of pulp or paper. Your committee personally has visited and inspected carefully a large number of pulp and paper mills, have inspected and examined forests, both in the United States and in Canada, have given long study to the woods used, have considered every phase of the subject concerning which information was available, and have reached the conclusions hereinabove stated. It is not practicable, or, in the opinion of your committee, necessary for the committee in this report to set forth in detail or even in a general way the results of the information obtained.

The committee has obtained from a large number of newspaper publishers of the United States schedules showing the cost to them of paper through a series of years, which schedules have been tabulated and published in the committee's hearings.

The committee has also obtained schedules from the pulp and paper manufacturers of the United States, giving information concerning the capital invested, the cost of production, the percentage of cost paid in wages, the selling price of the articles produced, the quantity of production, etc., which schedules have been reduced to general tabulations and the tabulations published in the hearings.

The committee has also carefully investigated, through schedules and through the aid of the Department of Labor, the percentage of wages going into the cost of production of pulp and paper and the cost of labor per unit both for pulp and paper, including the cost from the forest to the finished product, all of which tables are published in the hearings.

The committee has also investigated through statements obtained from manufacturers in Canada and through personal investigation by the Department of Labor the wage cost in Canadian mills. The committee has also obtained information concerning the wage cost and cost of production in Sweden. The committee has also obtained through the Treasury Department full information as to the importations of pulp wood, wood pulp, and print paper into the United States from different places and at different ports of entry. The committee has also obtained full and complete information as to the exportation and importation of paper and paper-making materials from and to the different countries of the world. All of this information has been published in the hearings of the committee, comprising between 3,000 and 4,000 pages of printed testimony, and all of which has been carefully and conscientiously considered by the committee in forming its decision.

The members of your committee, when appointed, had no special or general knowledge of the subject. They have labored diligently and as effectively as they could. The effort of your committee has been to arrive at facts and just conclusions, regardless of personal bias or partisan considerations. The recommendations which the committee present are the unanimous views of the entire membership of the committee. In making its report to the House, the committee

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begs leave to express its thanks and appreciation for the services rendered to the committee by the President, by the State Department, by the Census Office, by the Bureau of Statistics, by the Bureau of Corporations, by the Bureau of Labor, by the Forest Service, and by the Bureau of Plant Industry. We also beg to acknowledge the courtesy of information freely and voluntarily furnished by many of the mill owners and by the American Pulp and Paper Association, as well as the American Publishers' Association, and the chairman of its committee on paper.

While your committee does not feel that it has exhausted the subject it can only say it has done as well as its members knew how.

Your committee beg leave to state that unless otherwise directed by the House it will continue and complete the work of publishing and indexing the tabulations prepared and the evidence taken by the committee.

All of which is respectfully submitted.

JAMES R. MANN.
JAMES M. MILLER.
WILLIAM H. STAFFORD.
HENRY T. BANNON.
THETUS W. SIMS.
WILLIAM H. RYAN.

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PULP AND PAPER INVESTIGATION HEARINGS

STATISTICS OF MANUFACTURE

SELECT COMMITTEE OF THE HOUSE OF REPRESENTATIVES

JAMES R. MANN, Illinois, *Chairman*

JAMES M. MILLER, Kansas
HENRY T. BANNON, Ohio
WILLIAM H. STAFFORD, Wisconsin
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Prof. W. Z. Ripley

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STATISTICS OF MANUFACTURE.

The CHAIRMAN. In attempting to obtain statistics of manufacture of the pulp and paper industry of the United States the committee sent out about 900 schedules. It should be stated that this figure includes the various plants of a given company, and that the number of firms in the United States, that is, the sum of those in all States, is given in Lockwood's Directory as 758. Since it happens that several companies are represented in different States, the actual number of pulp and paper making firms in the country is even less. The percentage of replies is, therefore, larger than apparent. Approximately 550 replies have been received. Of these, about 43 have not been tabulated on account of incompleteness; the information given by 33 of them, however, is presented in a brief statement. Certain companies are not represented because their operations did not fall within the scope of the investigation, as shown on the printed form mailed. The books of a number of others were not in such shape as to permit the questions to be answered without involving considerable time and expense; while still other mills were under construction during the period asked for and information could not be presented. The proportion of tabulated returns to the total number of plants now running and manufacturing the grades of paper products involved in the inquiry is larger than actually appears.

In the following tables 304 establishments have been tabulated, representing 386 plants. These figures include those given on pages 2746–2750, and the tables comprise said information, together with additional reports received since the former compilation.

The statistics covering the year 1907 are concerned with the capital invested; salaried employees and wage-earners; rent, taxes, insurance, repairs, and miscellaneous expenses; cost of materials by kind, quantity, and value; quantity and value of manufactured products; cost of manufacturing products, with the percentage represented by wages, materials, and all other expenses of production; comparative monthly average selling prices per ton of product for 1906 and 1907; yearly capacity and average number of days operated in 1907.

In addition, tabulations have been made by products, including news-print paper, book paper, fiber paper, manila paper, writing paper, and specialties. On account of the fact that a given mill may produce a number of varieties and grades of paper, it is obvious that the same establishment may appear in two or more of the last-named tables.

A statement showing the labor cost per ton for various kinds of products has also been formulated from the schedules received.

All the statistics are given by States.

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TOTAL STATISTICS OF PULP AND PAPER INDUSTRY.

TABLE 1.—*Number of establishments, capital invested, salaried employees, and wage-earners, rents, and taxes, by States, 1907.*

State.	Number of establishments	Capital (amount).	Salaried employees.			Wage-earners.			Rent, taxes, etc.
			Number.	Salaries.	Average salary.	Number.	Wages.	Average wage.	
Total.....	304	$215,417,154	2,212	$4,215,635	$1,906	39,884	$20,522,912	$515	$11,575,945
Connecticut.....	13	2,226,988	46	64,624	1,404	553	305,328	552	191,598
Illinois.....	6	1,122,995	24	25,078	1,045	189	112,291	594	48,812
Indiana.....	5	1,933,989	25	34,479	1,379	295	159,644	541	120,318
Iowa.....	3	318,583	13	16,918	1,301	138	67,694	491	35,687
Maine.....	7	7,318,521	47	114,097	2,428	1,224	720,425	589	346,833
Massachusetts....	43	76,535,124	620	1,333,604	2,151	12,737	6,281,103	493	2,819,967
Maryland.....	3	89,025	3	6,358	2,119	37	13,546	366	3,600
Michigan.....	21	12,934,162	172	289,633	1,684	3,355	1,579,433	471	892,900
Minnesota.....	4	2,647,918	28	41,253	1,473	467	281,445	603	206,896
New Hampshire..	8	3,639,914	35	45,972	1,313	547	267,654	489	161,538
New Jersey.....	10	2,021,545	47	131,806	2,804	613	333,713	544	159,264
New York.....	72	56,354,154	480	952,238	1,984	8,645	4,915,403	569	3,157,580
Ohio.....	17	4,939,789	89	135,420	1,522	1,265	620,567	490	417,718
Pennsylvania.....	30	15,884,291	183	371,952	2,033	3,668	1,796,990	490	1,188,625
Vermont.....	12	1,460,764	35	60,118	1,718	237	176,116	743	92,750
Virginia.....	5	1,883,548	37	66,568	1,799	297	170,131	573	135,539
West Virginia....	5	1,497,658	21	43,740	2,083	434	210,762	486	165,267
Wisconsin.....	32	19,515,855	258	402,394	1,560	4,592	2,197,024	478	1,242,198
All other[a].....	8	3,092,331	49	79,383	1,620	591	313,643	531	188,960

[a] Includes California, Delaware, Missouri, North Carolina, South Carolina, and Washington with one establishment each, and Kansas with two.

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TOTAL STATISTICS.

TABLE 2.—*Number of establishments returned, cost of materials used, expressed by kind, quantity, and value, by States: 1907.*

State.	Number of establishments.	Cost of materials used during the year.																Fuel (value).	Other materials (value).	Total cost (amount).
		Wood for pulp.			Ground-wood fiber.			Sulphite.			Soda.			All other.					
		Cords.	Value.	Average price per cord.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.			
Total	304	1,677,419	$13,022,662	$7.76	186,236	$3,905,975	$20.97	280,142	$12,807,600	$45.72	58,916	$2,556,826	$43.31	60,300	$1,836,696	$22.17	$8,509,355	$33,761,682	$75,900,796
Connecticut	13	.....	.....	.....	4,522	79,145	17.50	2,655	123,416	46.49	506	22,368	44.20	1,810	21,453	11.85	130,034	683,377	1,059,793
Illinois	6	.....	.....	.....	.....	.....	.....	1,814	74,555	41.10	.....	.....	.....	.....	.....	.....	44,422	286,850	405,827
Indiana	5	200	1,500	7.50	9,705	207,533	21.38	4,355	207,855	47.73	.....	.....	.....	.....	.....	.....	80,366	288,211	785,465
Iowa	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	31,065	151,023	182,088
Maine	7	125,594	854,824	6.81	7,854	137,300	17.48	738	25,508	34.56	.....	.....	.....	.....	.....	.....	305,804	557,988	1,881,424
Maryland	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,024	46,528	47,552
Massachusetts	43	109,141	797,268	7.30	12,656	268,523	21.22	85,362	4,345,216	50.90	30,955	1,335,354	43.14	3,772	127,687	33.85	2,087,040	12,636,446	21,597,534
Michigan	21	102,754	603,677	5.87	12,411	288,126	23.21	19,798	878,419	44.37	11,902	511,371	42.97	27,423	664,593	24.23	820,490	2,180,621	5,947,297
Minnesota	4	36,838	302,706	8.22	2,392	56,456	23.60	6,310	303,415	48.08	426	22,915	53.79	.....	.....	.....	70,191	106,388	862,071
New Hampshire	8	42,823	338,061	7.89	6,987	116,720	16.71	13,252	451,269	34.05	3,780	162,186	42.91	852	23,789	27.92	143,755	353,680	1,589,460
New Jersey	10	.....	.....	.....	259	6,574	25.38	664	28,747	43.29	.....	.....	.....	1,150	44,850	39.00	142,985	820,032	1,043,188
New York	72	654,514	5,575,655	8.67	39,179	804,763	20.54	58,371	2,437,931	41.77	579	25,885	44.71	15,904	231,996	14.59	2,118,450	6,529,115	17,723,795
Ohio	17	3,460	36,427	10.53	2,007	47,317	23.58	13,996	641,353	45.82	1,481	65,670	44.34	.....	.....	.....	284,101	1,778,538	2,853,409
Pennsylvania	30	154,038	1,138,701	7.39	2,564	62,187	24.25	16,018	749,661	46.80	5,902	255,069	43.22	6,931	165,560	23.89	838,903	3,645,585	6,855,666
Vermont	12	15,043	143,836	9.56	8,558	162,436	18.98	7,998	310,948	38.88	101	4,529	44.84	81	4,860	60.00	51,932	143,373	821,914
Virginia	5	31,169	224,000	7.19	1,524	34,249	22.47	504	22,075	43.80	1,290	64,303	49.85	.....	.....	.....	102,283	439,981	886,891
West Virginia	5	34,201	160,736	3.88	1,115	24,291	21.79	70	2,842	40.60	.....	.....	.....	.....	.....	.....	586	421,091	702,546
Wisconsin	32	347,960	2,739,483	7.87	63,707	1,375,694	21.59	44,770	2,042,239	45.62	1,906	82,247	43.15	2,377	51,908	21.84	964,255	2,244,604	9,500,430
All other[a]	8	19,684	105,788	5.37	10,796	234,661	21.74	3,467	162,151	46.77	88	4,929	56.01	.....	.....	.....	198,669	448,251	1,154,449

[a] Includes California, Delaware, Missouri, North Carolina, South Carolina, and Washington, with one establishment each, and Kansas with two.

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TOTAL STATISTICS—Continued.

TABLE 3.—*Number of establishments returned, quantity and value of manufactured products, by States: 1907.*

State.	Number of establishments.	Quantity and value of manufactured products.												All other products (value).	Total value (amount).
		News paper.						All other varieties of paper.			Pulp and fiber sold.				
		In rolls.			In sheets.										
		Tons	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.		
Total	304	269,896	$10,872,694	$40.28	80,863	$3,467,358	$42.88	1,407,517	$100,135,083	$71.14	631,486	$11,198,583	$17.73	$890,147	$126,563,865
Connecticut	13	2,035	85,877	42.20	.....	.....	.....	24,417	1,737,113	71.96	.....	.....	.....	.....	1,842,990
Illinois	6	.....	.....	.....	.....	.....	.....	19,386	582,560	30.05	.....	.....	.....	96,495	679,055
Indiana	5	.....	.....	.....	9,902	508,512	51.35	20,847	737,882	35.40	.....	.....	.....	.....	1,246,394
Iowa	3	.....	.....	.....	.....	.....	.....	9,466	316,427	33.43	.....	.....	.....	.....	316,427
Maine	7	30,671	1,152,838	37.59	.....	.....	.....	25,718	1,193,909	46.42	34,896	1,271,264	36.43	8,172	3,626,183
Maryland	3	.....	.....	.....	.....	.....	.....	1,327	76,161	57.39	.....	.....	.....	.....	76,161
Massachusetts	43	.....	.....	.....	.....	.....	.....	324,919	34,987,194	107.68	26,991	1,192,075	44.17	32,414	36,211,683
Michigan	21	13,806	608,862	44.10	.....	.....	.....	151,651	9,093,496	59.96	2,683	84,989	31.68	235,608	10,022,955
Minnesota	4	30,134	1,279,267	42.45	4,113	199,141	48.42	.....	.....	.....	3,925	81,719	20.82	.....	1,560,127
New Hampshire	10	1,852	97,919	52.87	789	41,693	52.84	24,571	1,685,027	68.58	20,374	537,951	26.40	.....	2,362,590
New Jersey	10	.....	.....	.....	.....	.....	.....	42,648	1,872,941	43.92	.....	.....	.....	68,524	1,941,465
New York	72	95,328	3,756,366	39.40	44,356	1,786,539	40.28	321,360	19,830,418	61.71	424,954	4,429,915	10.42	235,391	30,038,629
Ohio	17	.....	.....	.....	.....	.....	.....	78,419	4,554,556	58.08	140	5,810	41.50	4,782	4,565,148
Pennsylvania	30	825	43,867	53.17	465	25,877	55.65	166,976	11,145,302	66.75	12,066	500,066	41.44	161,853	11,876,965
Vermont	12	.....	.....	.....	.....	.....	.....	17,249	1,074,163	62.27	15,995	262,995	16.44	.....	1,337,158
Virginia	5	.....	.....	.....	1,017	56,585	55.64	8,619	704,078	81.69	15,985	569,943	35.65	.....	1,330,606
West Virginia	5	.....	.....	.....	.....	.....	.....	4,431	219,042	49.43	4,500	95,985	21.33	.....	315,027
Wisconsin	32	82,626	3,248,315	39.31	20,221	849,011	41.99	138,719	8,904,068	64.19	68,940	2,165,427	31.41	14,651	15,181,472
All other[a]	7	12,619	599,383	47.50	.....	.....	.....	26,794	1,400,746	52.28	37	444	12.00	32,257	2,032,830

[a] Includes California, Delaware, Missouri, North Carolina, South Carolina, and Washington with 1 establishment each and Kansas with 2.

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TOTAL STATISTICS—Continued.

TABLE 4.—*Total cost of manufacturing paper and pulp, per cent of total cost represented by wages, materials, and other expenses.*

State.	Number of establishments reported.	Total cost of manufacturing (amount).	Cost of production represented by—					
			Wages.		Materials.		All other expenses.	
			Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.
Total	304	$112,699,418	$20,522,912	18.2	$75,900,796	67.4	$16,275,710	14.4
Connecticut	13	1,646,520	305,328	18.5	1,059,793	64.4	281,399	17.1
Illinois	6	595,308	112,291	18.8	405,827	68.2	77,190	13.0
Indiana	5	1,107,630	159,644	14.4	785,465	70.9	162,521	14.7
Iowa	3	302,387	67,694	22.4	182,068	60.2	52,605	17.4
Maine	7	3,062,719	720,425	23.5	1,881,424	61.4	460,870	15.1
Maryland	3	71,056	13,546	19.1	47,552	66.9	9,958	14.0
Massachusetts	43	32,277,247	6,281,103	19.5	21,597,534	66.9	4,398,610	13.6
Michigan	21	8,718,615	1,579,433	18.1	5,947,297	68.2	1,191,885	13.7
Minnesota	4	1,391,665	281,445	20.2	862,071	62.0	248,149	17.8
New Hampshire	8	2,064,724	267,654	13.0	1,589,460	77.0	207,610	10.0
New Jersey	10	1,667,971	333,713	20.0	1,043,188	62.5	291,070	17.5
New York	72	26,834,503	4,915,403	18.3	17,723,795	66.1	4,195,305	15.6
Ohio	17	4,034,746	620,567	15.4	2,853,406	70.7	560,773	13.9
Pennsylvania	30	10,279,438	1,796,990	17.5	6,855,666	66.7	1,626,782	15.8
Vermont	12	1,150,898	176,116	15.3	821,914	71.4	152,868	13.3
Virginia	5	1,259,129	170,131	13.5	886,891	70.4	202,107	16.1
West Virginia	5	1,141,597	210,762	18.5	702,546	61.5	228,289	20.0
Wisconsin	32	13,357,230	2,197,024	16.5	9,500,430	71.1	1,659,776	12.4
All other[a]	8	1,736,035	313,643	18.1	1,154,449	66.5	267,943	15.4

[a] Includes California, Delaware, Missouri, North Carolina, South Carolina, and Washington with one establishment each and Kansas with two.

TABLE 5.—*Number of plants returned, total yearly capacity, average capacity, and average number of days operated in 1907, distributed by States.*

State.	Plants reported (number)	Yearly capacity (short tons).		Average capacity.		Average number days operated in 1907.
		Paper.	Pulp.	Paper.	Pulp.	
Total	386	2,028,865	1,194,642	6,038	11,487	280
Connecticut	16	32,697	.....	2,044	.....	290
Illinois	5	22,808	.....	4,562	.....	258
Indiana	5	34,080	2,000	6,816	2,000	280
Iowa	3	10,802	.....	3,601	.....	265
Maine	7	61,150	98,700	12,230	16,450	304
Maryland	3	1,610	.....	537	.....	295
Massachusetts	75	383,957	52,800	5,189	13,200	280
Michigan	25	209,190	70,680	8,716	7,853	284
Minnesota	7	39,000	38,500	9,750	6,417	298
New Hampshire	6	26,358	23,500	5,272	7,833	298
New Jersey	11	52,177	.....	4,743	.....	285
New York	94	477,109	480,608	6,536	9,424	278
Ohio	21	97,905	3,300	4,662	3,300	257
Pennsylvania	33	195,060	82,710	5,911	9,190	279
Vermont	13	20,275	39,528	2,534	7,906	264
Virginia	4	11,200	16,500	2,800	16,500	293
West Virginia	5	20,155	20,500	5,039	10,250	284
Wisconsin	44	275,232	255,116	9,456	8,504	284
All other[a]	9	58,100	10,200	6,456	3,400	271

[a] Includes California, Delaware, Missouri, North Carolina, and Washington, with one plant each, and Kansas and South Carolina, with two plants each.

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NEWS-PRINT PAPER.[a]

TABLE 1.—*Number of establishments returned, capital invested, salaried employees and wage-earners, rents, and taxes, by States: 1907.*

State.	Number of establishments.	Capital.	Salaried employees.			Wage-earners.			Rent taxes, etc.
			Number.	Salaries.	Average salary.	Number.	Wages.	Average wages.	
Total.....	38	$36,715,217	331	$545,990	$1,650	5,965	$3,281,119	$550	$2,080,462
Minnesota.....	4	2,647,918	28	41,253	1,473	467	281,445	603	206,896
New York.....	14	14,915,842	116	195,207	1,683	1,873	1,102,620	589	761,857
Pennsylvania.....	2	1,148,364	15	19,070	1,271	413	195,049	472	90,152
Wisconsin.....	11	10,890,417	125	195,594	1,565	2,322	1,121,059	483	691,984
All other States[b]..	7	7,112,676	47	94,866	2,018	890	580,946	653	329,573

[a] The following important news-print paper manufacturers did not comply with the request of furnishing information, and consequently their operations are not included in the statistics shown in the tables. The companies are: The International Paper Co., The Great Northern Paper Co., W. H. Parsons & Co., Berlin Mills Co., Floriston Pulp and Paper Co., and Willamette Pulp and Paper Co.

[b] Includes Connecticut, Indiana, Maine, Michigan, Missouri, New Hampshire, and Virginia, with one establishment each.

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TABLE 2.—*Number of establishments returned, cost of materials used, expressed by kind, quantity, and value, by States: 1907.*

COST OF MATERIALS USED DURING THE YEAR.

State.	Number of establishments.	Wood for pulp.			Ground wood fiber.			Sulphite.			Soda.			All other.			Fuel (value).	Other materials (value).	Total cost (amount).
		Cords.	Value.	Average price per cord.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.			
Total	38	459,620	$4,093,711	$8.91	96,621	$2,076,845	$21.49	63,777	$2,711,861	$42.52	1,143	$63,087	$55.19	5,417	$87,332	$16.12	$1,264,663	$2,231,727	$12,529,226
Minnesota	4	36,838	302,706	8.22	2,392	56,456	23.60	6,310	303,415	48.08	426	22,915	53.79	.....	.....	.....	70,191	106,388	862,071
New York	14	147,551	1,643,325	11.14	14,539	309,428	21.28	25,545	1,029,776	40.31	5	216	43.20	3,200	38,867	12.15	378,312	769,617	4,169,541
Pennsylvania	2	13,910	78,846	5.67	.....	.....	.....	65	3,307	50.88	.....	.....	.....	.....	.....	.....	69,781	248,658	400,592
Wisconsin	11	199,574	1,659,422	8.31	48,167	1,037,402	21.54	24,337	1,029,366	42.30	154	7,262	47.16	2,217	48,465	21.86	541,567	701,134	5,024,618
All other States [a]	7	61,747	409,412	6.63	31,523	673,559	21.37	7,520	345,997	46.01	558	32,694	58.59	.....	.....	.....	204,812	405,930	2,072,404

[a] Includes Connecticut, Indiana, Maine, Michigan, Missouri, New Hampshire, and Virginia, with 1 establishment each.

TABLE 3.—*Number of establishments returned quantity and value of manufactured products, by States: 1907.*

QUANTITY AND VALUE OF PRODUCTS.

State.	Number of establishments.	News-print paper.						All other varieties of paper.			Pulp and fiber sold.			All other products, value.	Total value.
		In rolls.			In sheets.										
		Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.		
Total	38	269,896	$10,872,694	$40.28	80,863	$3,467,358	$42.88	102,812	$4,969,992	$48.34	51,444	$1,535,948	$29.86	$70,256	$20,916,248
Minnesota	4	30,134	1,279,267	42.45	4,113	199,141	48.42	.....	.....	.....	3,925	81,719	20.82	.....	1,560,127
New York	14	95,328	3,756,366	39.40	44,356	1,786,539	40.28	32,382	1,402,983	43.33	9,947	280,044	28.15	33,296	7,259,228
Pennsylvania	2	825	43,867	53.17	465	25,877	55.65	15,080	641,253	42.52	.....	.....	.....	.....	724,483
Wisconsin	11	82,626	3,248,315	39.31	20,221	849,011	41.99	50,782	2,640,949	52.01	31,774	981,111	30.88	15,302	7,734,688
All other States [a]	7	60,983	2,544,879	41.73	11,708	606,790	51.83	4,568	284,807	62.35	5,808	193,074	33.24	8,172	3,637,722

[a] Includes Connecticut, Indiana, Maine, Michigan, Missouri, New Hampshire, and Virginia, with one establishment each.

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NEWS-PRINT PAPER—Continued.

TABLE 4.—*Total cost of manufacturing and per cent of total cost represented by wages, materials, and other expenses.*

State.	Number of establishments.	Total cost of manufacturing.	Cost of production represented by—					
			Wages.		Materials.		All other expenses.	
			Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.
Total	38	$18,459,086	$3,281,119	17.8	$12,529,226	67.9	$2,648,741	14.3
Minnesota	4	1,391,665	281,445	20.2	862,071	62.0	248,149	17.8
New York	14	6,229,225	1,102,620	17.7	4,169,541	66.9	957,064	15.4
Pennsylvania	2	704,863	195,049	27.7	400 592	56.8	109,222	15.5
Wisconsin	11	7,048,444	1,121,059	15.9	5,024,618	71.3	902.767	12.8
All other States[a]	7	3,084.889	580,946	67.2	2,072,404	18.8	431,539	14.0

[a] Includes Connecticut, Indiana, Maine, Michigan, Missouri, New Hampshire, and Virginia, with 1 establishment each.

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TABLE 5.—*Comparative monthly average selling prices per ton by States: 1906 and 1907.*

State.	Year.	Average price per ton.											
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Minnesota	1907	$37.25	$37.20	$37.80	$38.27	$38.60	$39.00	$39.60	$39.53	$40.87	$42.00	$43.27	$44.13
	1906	35.87	36.63	36.60	36.80	36.53	36.53	36.86	36.07	36.40	36.00	36.73	36.93
New York	1907	40.13	40.80	41.68	42.27	43.13	43.47	43.98	44.27	44.73	45.36	45.38	45.42
	1906	37.01	36.87	37.02	37.23	36.88	36.89	37.57	37.68	37.67	38.12	38.68	38.80
Pennsylvania	1907	52.00	52.00	52.00	54.00	54.00	54.00	55.00	55.00	56.00	56.00	56.00	56.00
	1906	52.00	52.00	52.00	52.00	52.00	52.00	52.00	52.00	52.00	52.00	52.00	52.00
Wisconsin	1907	39.70	40.51	40.64	40.66	41.11	42.02	41.57	43.00	42.91	43.07	42.95	43.61
	1906	38.95	38.61	38.99	38.65	38.48	38.91	37.79	38.13	37.72	37.78	38.63	39.23
All other States[a]	1907	47.93	47.43	46.84	47.32	47.89	48.44	48.13	48.37	49.03	49.50	49.43	49.14
	1906	44.33	43.69	44.57	44.83	44.63	44.81	44.60	44.02	43.56	44.27	45.34	45.66

[a] Includes Connecticut, Indiana, Maine, Michigan, Missouri, New Hampshire, and Virginia.

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NEWS-PRINT PAPER—Continued.

TABLE 6.—*Number of plants returned, total yearly capacity, average capacity, and average number of days operated in 1907, distributed by States.*

State.	Plants reported (number).	Yearly capacity (short tons).		Average capacity (short tons.)		Average number of days operated.
		Paper.	Pulp.	Paper.	Pulp.	
Total	48	475,599	390,901	11,890	11,169	295
Minnesota	7	39,000	38,500	9,750	6,417	298
New York	16	171,070	137,911	11,405	9,851	296
Pennsylvania	2	21,810	12,000	10,905	12,000	285
Wisconsin	16	159,930	147,420	13,328	13,402	291
All other States [a]	7	83,789	55,070	11,970	18,357	296

[a] Includes Connecticut, Indiana, Maine, Michigan, Missouri, New Hampshire, and Virginia with one establishment each.

BOOK PAPER.

TABLE 1.—*Number of establishments returned, capital invested, salaried employees and wage-earners, rents, and taxes, by States: 1907.*

State.	Number of establishments.	Capital.	Salaried employees.			Wage-earners.			Rent, taxes, etc.
			Number.	Salaries.	Average salary.	Number.	Wages.	Average wage.	
Total	38	$57,694,144	430	$1,077,991	$2,507	11,978	$6,316,442	$527	$3,371,684
Massachusetts	7	16,319,454	101	274,321	2,716	3,397	1,867,363	550	857,078
Michigan	7	4,533,431	68	135,286	1,990	1,818	787,388	433	395,399
New York	3	23,199,675	117	359,893	3,076	3,651	2,161,391	592	1,266,082
Pennsylvania	7	7,018,190	64	165,735	2,590	1,621	769,084	474	519,437
Wisconsin	5	3,444,644	33	55,476	1,681	784	348,335	444	112,339
Connecticut and Maryland	3	421,525	6	12,423	2,071	110	57,736	525	17,398
New Hampshire and New Jersey	3	1,075,570	16	29,002	1,813	251	129,578	516	59,289
Ohio and Washington	3	1,681,655	25	45,855	1,834	346	195,567	565	144,672

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BOOK PAPER—Continued.

TABLE 2.—*Number of establishments returned, cost of materials used, expressed by kind, quantity, and value, by States: 1907.*

COST OF MATERIALS USED DURING THE YEAR.

State.	Number of establishments.	Wood for pulp.			Ground wood fiber.			Sulphite.			Soda.			All other.			Fuel (value).	Other materials (value).	Total cost (amount).
		Cords.	Value.	Average price per cord.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.			
Total.....	38	486,569	$3,695,773	$7.59	12,897	$272,739	$21.15	83,828	$3,961,901	$47.26	37,860	$1,632,356	$43.11	30,812	$778,511	$25.26	$2,860,954	$10,054,462	$23,256,696
Massachusetts...	7	86,919	630,992	7.26	6,292	129,149	20.52	33,434	1,588,988	47.53	16,581	714,328	43.08	299	17,308	57.89	849,962	3,009,642	6,940,369
Michigan.....	7	3,113	23,122	7.43	1,227	29,677	24.19	16,704	781,802	46.80	11,902	511,371	42.97	24,239	625,858	25.82	349,423	1,122,912	3,444,165
New York.....	3	313,270	2,333,825	7.45	.....	.....	.....	7,318	301,875	41.25	.....	.....	.....	.....	.....	.....	1,029,730	3,258,085	6,923,515
Pennsylvania....	7	50,212	406,324	8.09	779	18,930	24.30	10,109	502,945	49.75	3,997	173,613	43.44	6,274	135,345	21.57	319,982	1,300,776	2,857,915
Wisconsin.....	5	16,963	193,667	11.42	4,553	93,287	20.49	8,578	431,003	50.25	1,574	67,976	43.19	.....	.....	.....	119,391	625,534	1,530,858
Connecticut and Maryland.....	3	.....	.....	.....	.....	.....	.....	59	2,793	47.34	59	2,598	44.03	.....	.....	.....	16,763	131,187	153,341
New Hampshire and New Jersey.....	3	.....	.....	.....	.....	.....	.....	2,168	101,227	46.69	3,587	154,258	43.00	.....	.....	.....	53,038	359,292	667,815
Ohio and Washington.....	3	16,092	107,843	6.70	46	1,696	37.18	5,458	251,268	46.04	160	8,212	51.33	.....	.....	.....	122,665	247,034	738,718

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BOOK PAPER—Continued.

TABLE 3.—*Number of establishments returned, quantity and value of manufactured products by States: 1907.*

QUANTITY AND VALUE OF MANUFACTURED PRODUCTS.

State.	Number of establishments.	News print paper.						Book paper.			Pulp and fiber sold.			All other products (value).	Total value.
		In rolls.			In sheets.										
		Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.		
Total	38	11,257	$435,577	$38.69	3,254	$153,982	$47.32	448,402	$34,656,811	$77.29	66,128	$2,730,482	$41.29	$266,258	$38,243,110
Massachusetts	7	.....	.....	.....	.....	.....	.....	125,961	10,527,836	83.58	18,210	731,073	40.15	30,201	11,289,110
Michigan	7	.....	.....	.....	.....	.....	.....	73,149	5,235,960	71.58	.....	.....	.....	160,395	5,396,355
New York	3	.....	.....	.....	.....	.....	.....	142,509	9,784,709	68.66	44,846	1,867,533	41.64	58,994	11,711,236
Pennsylvania	7	825	43,867	53.17	415	24,113	58.10	52,955	4,752,228	89.74	2,932	126,066	43.00	13,486	4,959,760
Wisconsin	5	10,432	391,710	37.55	2,849	129,869	45.58	22,764	1,825,342	80.19	.....	.....	.....	.....	2,346,921
Connecticut and Maryland	3	.....	.....	.....	.....	.....	.....	2,732	257,535	94.27	.....	.....	.....	.....	257,535
New Hampshire and New Jersey	3	.....	.....	.....	.....	.....	.....	12,304	995,466	80.91	.....	.....	.....	.....	995,466
Ohio and Washington	3	.....	.....	.....	.....	.....	.....	16,028	1,277,735	79.72	140	5,810	41.50	3,182	1,286,727

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BOOK PAPER—Continued.

TABLE 4.—*Total cost of manufacturing and per cent of total cost represented by wages, materials, and other expenses.*

State.	Number of establishments.	Total cost of manufacturing.	Cost of production represented by—					
			Wages.		Materials.		All other expenses.	
			Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.
Total	38	$34,222,783	$6,316,442	18.5	$23,256,696	67.9	$4,649,645	13.6
Massachusetts	7	10,139,151	1,867,363	18.4	6,940,369	68.5	1,331,419	13.1
Michigan	7	4,762,239	787,388	16.5	3,444,165	72.3	530,686	11.2
New York	3	10,710,880	2,161,391	20.2	6,923,515	64.6	1,625,974	15.2
Pennsylvania	7	4,312,171	769,084	17.8	2,857,915	66.3	685,172	15.9
Wisconsin	5	2,046,998	348,335	17.0	1,530,858	74.8	167,805	8.2
Connecticut and Maryland	3	240,898	57,736	24.0	153,341	63.6	29,821	12.4
New Hampshire and New Jersey	3	885,634	129,578	14.6	667,815	75.4	88,241	10.0
Ohio and Washington	3	1,124,812	195,567	17.4	738,718	65.7	190,527	16.9

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BOOK PAPER—Continued.

TABLE 5.—*Comparative monthly average selling prices per ton by States: 1906 and 1907.*

State.	Year.	Average price per ton.											
		Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Massachusetts	1907	$87.52	$88.31	$88.49	$89.18	$88.50	$88.66	$89.40	$89.28	$89.87	$89.52	$89.60	$89.26
	1906	88.39	88.08	88.06	88.12	88.62	88.05	88.96	89.30	89.33	88.49	88.81	87.62
Michigan	1907	66.27	67.00	67.29	67.19	69.69	69.38	70.35	70.10	71.06	71.84	72.35	71.71
	1906	63.98	63.97	64.18	63.59	63.68	63.35	63.31	63.60	63.89	63.71	63.93	64.88
New York	1907	65.41	66.38	67.25	67.54	68.55	68.44	67.90	68.98	69.22	69.87	70.79	69.99
	1906	65.10	64.76	64.53	64.75	64.34	64.52	64.17	64.60	64.28	64.10	64.90	65.31
Pennsylvania	1907	88.19	88.25	90.99	94.28	92.05	92.12	91.64	93.00	93.39	93.99	94.42	94.11
	1906	87.77	88.27	88.17	88.14	88.53	87.04	88.14	87.37	87.94	88.98	89.04	88.51
Wisconsin	1907	75.61	75.78	76.97	78.14	79.19	79.19	79.40	79.01	79.62	81.14	80.45	82.95
	1906	73.68	72.80	74.43	73.81	73.34	74.08	73.75	73.06	73.05	73.66	75.10	75.67
Connecticut and Maryland	1907	103.00	103.00	105.50	105.50	105.50	105.50	105.50	105.50	105.50	105.50	105.50	105.50
	1906	103.00	103.00	103.00	103.00	103.00	103.00	103.00	103.00	103.00	103.00	103.00	103.00
New Hampshire and New Jersey	1907	81.92	82.79	82.77	83.28	83.06	82.85	83.01	83.34	83.27	83.05	83.95	82.78
	1906	83.27	80.67	81.71	80.69	82.13	80.19	79.69	80.32	79.42	80.44	80.84	80.39
Ohio and Washington	1907	91.29	92.26	93.26	92.86	93.72	92.79	92.99	94.52	91.99	93.39	95.26	94.99
	1906	89.39	89.46	89.26	89.99	89.86	89.86	89.86	89.86	88.26	88.99	88.52	89.46

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BOOK PAPER—Continued.

TABLE 6.—*Number of plants returned, total yearly capacity, average capacity, and average number of days operated in 1907, distributed by States.*

State.	Plants reported (number).	Yearly capacity (short tons).		Average capacity (short tons).		Average number of days operated.
		Paper.	Pulp.	Paper.	Pulp.	
Total	65	537,818	288,978	11,205	14,448	285
Massachusetts	13	148,727	50,300	12,394	16,767	270
Michigan	11	97,524	3,000	9,752	3,000	285
New York	15	158,442	183,851	17,605	16,714	299
Pennsylvania	10	62,412	34,085	6,241	6,817	274
Wisconsin	7	36,433	14,442	5,205	4,814	293
Connecticut and Maryland	3	3,180	.....	1,060	.....	285
New Hampshire and New Jersey	3	13,900	.....	4,633	.....	283
Ohio and Washington	3	17,200	3,300	5,733	3,300	290

FIBER PAPER.

TABLE 1.—*Number of establishments returned, capital invested, salaried employees and wage-earners, rents, and taxes, by States: 1907.*

State.	Number of establishments.	Capital.	Salaried employees.			Wage-earners.			Rent, taxes, etc.
			Number.	Salaries.	Average salary.	Number.	Wages.	Average wage.	
Total	27	$26,315,781	172	$491,248	$2,856	5,343	$2,771,310	$519	$1,247,559
Michigan	3	4,575,662	50	72,826	1,457	675	384,082	569	255,317
New York	7	8,931,545	80	174,225	2,178	1,748	897,131	513	206,801
Pennsylvania	7	5,785,360	56	98,360	1,756	1,231	637,679	518	354,739
Wisconsin	5	4,601,667	52	87,501	1,683	1,135	569,556	502	263,997
All other[a]	5	2,421,547	34	58,336	1,716	554	282,862	511	166,705

[a] Includes California, Connecticut, North Carolina, South Carolina, and West Virginia, with 1 establishment each.

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FIBER PAPER—Continued.

TABLE 2.—*Number of establishments returned, cost of materials used, expressed by kind, quantity, and value, by States: 1907.*

COST OF MATERIALS USED DURING THE YEAR.

State.	Number of establishments.	Wood for pulp.			Ground wood fiber.			Sulphite.			Soda.			All other.			Fuel (value).	Other materials (value).	Total cost (amount).
		Cords.	Value.	Average price per cord.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.			
Total	27	446,519	$2,743,254	$6.14	21,156	$454,158	$21.47	13,221	$627,391	$47.45	485	$20,895	$43.08	5,930	$96,382	$16.25	$1,448,547	$3,105,632	$8,496,259
Michigan	3	67,610	314,644	4.65	4,584	101,217	22.08	480	22,139	46.12							231,815	297,651	967,466
New York	7	122,278	844,251	6.90	4,653	90,957	19.50	7,104	349,062	49.13	20	900	45.00	5,795	93,685	16.17	458,575	1,052,037	2,889,467
Pennsylvania	7	103,826	732,377	7.05	128	3,079	24.05	2,630	131,439	49.98	465	19,995	43.00				293,695	850,783	2,031,368
Wisconsin	5	116,734	705,139	6.04	10,644	233,766	21.96	1,985	80,429	40.52				135	2,697	19.98	297,570	524,905	1,844,506
All other[a]	5	36,071	146,843	4.07	1,147	25,139	21.92	1,022	44,322	43.37							166,892	380,256	763,452

[a] Includes California, Connecticut, North Carolina, South Carolina, and West Virginia, with 1 establishment each.

TABLE 3.—*Number of establishments returned, quantity, and value of manufactured products, by States: 1907.*

QUANTITY AND VALUE OF MANUFACTURED PRODUCTS.

State.	Number of establishments.	News-print paper.						Fiber paper.			Pulp and fiber sold.			All other products (value).	Total value.
		In rolls.			In sheets.										
		Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.		
Total	27				8,098	$314,347	$38.82	237,793	$13,364,385	$56.20	33,292	$1,305,209	$39.21	$6,235	$14,990,236
Michigan	3							33,703	1,905,340	56.53	2,683	84,989	31.68	6,235	1,996,570
New York	7							62,807	3,877,145	61.73	18,944	754,661	39.84		4,631,806
Pennsylvania	7				50	1,764	35.28	55,088	3,433,209	62.32	9,134	374,000	40.95		3,808,973
Wisconsin	5				8,048	312,583	38.84	75,922	2,726,890	40.12	2,494	91,175	36.56		3,150,638
All other[a]	5							30,273	1,401,805	46.31	37	444	12.00		1,402,249

[a] Includes California, Connecticut, North Carolina, South Carolina, and West Virginia, with 1 establishment each.

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FIBER PAPER—Continued.

TABLE 4.—*Total cost of manufacturing and per cent of total cost represented by wages, materials, and other expenses.*

State.	Number of establishments.	Total cost of manufacturing.	Cost of production represented by—					
			Wages.		Materials.		All other expenses.	
			Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.
Total	27	$13,089,881	$2,771,310	21.2	$8,496,259	64.9	$1,822,312	13.9
Michigan	3	1,679,691	384,082	22.9	967,466	57.6	328,143	19.5
New York	7	4,179,071	897,131	21.5	2,889,467	69.1	392,473	9.4
Pennsylvania	7	3,174,916	637,679	20.1	2,031,368	64.0	505,869	15.9
Wisconsin	5	2,765,560	569,556	20.6	1,844,506	66.7	351,498	12.7
All other [a]	5	1,290,643	282,862	21.9	763,452	59.2	244,329	18.9

[a] Includes California, Connecticut, North Carolina, South Carolina, and West Virginia, with 1 establishment each.

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FIBER PAPER—Continued.

TABLE 5.—*Comparative monthly average selling prices per ton by States: 1906 and 1907.*

State.	Year.	Average price per ton.											
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Michigan	1907	$60.44	$59.45	$62.33	$64.18	$64.67	$65.02	$65.35	$69.07	$67.96	$69.18	$70.08	$70.19
	1906	54.10	53.86	53.78	53.97	53.41	53.22	53.01	53.42	53.70	55.33	57.91	59.31
New York	1907	46.63	46.79	48.20	48.81	49.21	49.66	51.72	52.05	52.54	53.87	54.20	53.93
	1906	44.98	45.34	44.74	44.67	44.94	45.19	44.81	44.87	44.60	44.34	45.31	46.28
Pennsylvania	1907	64.05	64.39	64.75	65.47	66.71	67.16	67.48	67.70	68.22	69.72	69.20	70.05
	1906	61.73	61.60	61.72	62.25	61.71	61.01	62.95	61.62	61.61	61.40	62.74	63.17
Wisconsin	1907	48.30	48.99	49.73	50.40	51.35	52.07	52.82	53.90	55.07	55.62	55.96	55.82
	1906	42.62	42.59	42.51	42.89	42.66	42.47	42.37	42.17	42.51	45.51	44.39	44.79
All other a	1907	45.38	45.31	45.63	45.06	45.69	45.63	48.50	46.63	46.38	47.28	48.88	48.50
	1906	41.64	40.70	41.41	41.89	41.94	43.19	43.13	41.95	42.50	42.73	43.50	43.08

a Includes California, Connecticut, North Carolina, South Carolina, and West Virginia.

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FIBER PAPER—Continued.

TABLE 6.—*Number of plants returned, total yearly capacity, average capacity, and average number of days operated in 1907, distributed by States.*

State.	Plants reported (number).	Yearly capacity (short tons).		Average capacity (short tons).		Average number of days operated.
		Paper.	Pulp.	Paper.	Pulp.	
Total	40	273,961	241,089	8,834	9,644	282
Michigan	4	39,000	36,700	13,000	12,233	276
New York	12	65,492	66,916	7,277	11,153	303
Pennsylvania	7	64,960	48,625	9,280	12,156	273
Wisconsin	11	73,609	64,148	10,516	8,019	281
All other[a]	6	30,900	24,700	6,180	6,175	275

[a] Includes California, Connecticut North Carolina, South Carolina, and West Virginia, with 1 establishment each.

MANILA PAPER.

TABLE 1.—*Number of establishments returned, capital invested, salaried employees, and wage-earners, rents, and taxes, by States, 1907.*

State.	Number of establishments.	Capital.	Salaried employees.			Wage earners.			Rent.
			Number.	Salaries.	Average salary.	Number.	Wages.	Average salary.	Taxes, etc.
Total	32	$17,033,876	209	$360,542	$1,725	3,716	$1,903,820	$512	$1,127,831
Maine	2	1,012,290	15	27,060	1,804	375	196,708	525	103,967
Massachusetts	2	230,425	10	15,900	1,590	83	44,611	537	27,552
Michigan	2	2,095,494	29	50,001	1,724	438	220,393	503	142,089
New York	8	5,065,556	45	75,399	1,676	646	342,229	530	237,003
Vermont	4	648,842	16	31,342	1,959	150	84,851	566	58,814
Wisconsin	5	5,350,809	61	107,163	1,757	1,348	673,649	500	285,256
All other[a]	9	2,630,460	33	53,677	1,627	676	341,379	505	273,150

[a] Includes Connecticut, New Hampshire, Pennsylvania, South Carolina, and West Virginia with one establishment; Maryland and Ohio with two establishments each.

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TABLE 2.—*Number of establishments returned, cost of materials used, expressed by kind, quantity, and value, by States: 1907.*

COST OF MATERIALS USED DURING THE YEAR.

	Number of establishments.	Wood for pulp.			Ground wood fiber.			Sulphite.			Soda.			All other.			Fuel (value).	Other materials (value).	Total cost (amount).
		Cords.	Value.	Average price per cord.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.			
Total	32	288,185	$1,841,481	$6.39	42,723	$846,735	$19.82	31,479	$1,153,516	$36.64	65	$3,198	$49.20	5,653	$64,772	$11.46	$952,421	$2,088,624	$6,950,747
Maine	2	36,114	253,588	7.02	1,448	25,780	17.80	388	19,078	49.17							82,336	133,748	515,530
Massachusetts	2	2,000	12,000	6.00	450	8,955	19.90	200	10,516	52.58							18,884	67,293	117,648
Michigan	2	30,530	213,864	7.01	234	5,749	24.57	960	22,139	46.12				3,184	38,735	12.17	109,112	85,948	475,547
New York	8	44,038	320,948	7.29	14,566	291,017	19.98	6,306	251,318	39.85				2,334	23,340	10.00	156,729	383,102	1,426,454
Vermont	4				7,024	131,090	18.66	6,801	268,267	39.45							34,991	56,995	491,343
Wisconsin	5	140,684	899,874	6.40	11,682	259,838	22.24	6,230	254,492	40.85				135	2,697	19.98	348,939	553,304	2,319,144
All other [a]	9	34,819	141,207	4.06	7,319	124,306	16.98	10,594	327,706	30.93	65	3,198	49.20				201,430	807,234	1,605,081

[a] Includes Connecticut, New Hampshire, Pennsylvania, South Carolina, and West Virginia, with one establishment; Maryland and Ohio with two establishments each.

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MANILA PAPER—Continued.

TABLE 3.—*Number of establishments returned, quantity and value of manufactured products, by States: 1907.*

QUANTITY AND VALUE OF MANUFACTURED PRODUCTS.

State.	Number of establishments.	News-print paper.						Manila paper.			Pulp and fiber sold.			All other products (value).	Total value.
		In rolls.			In sheets.										
		Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.		
Total	32	3,775	$137,737	36.49	8,322	$324,719	$39.02	216,677	$11,176,407	$51.58	8,711	$307,676	$35.32	$77,601	$12,024,140
Maine	2							13,660	766,654	56.12	6,270	218,865	34.91		985,519
Massachusetts	2							4,540	236,282	52.04					236,282
Michigan	2							17,019	1,073,270	63.06					1,073,270
New York	8							50,696	2,376,070	46.86	162	5,310	32.78	77,601	2,458,981
Vermont	4							13,110	763,786	58.26					763,786
Wisconsin	5	3,775	137,737	36.49	8,322	324,719	39.02	69,594	3,341,697	48.02	2,279	83,501	36.64		3,887,654
All other[a]	9							48,058	2,618,648	54.49					2,618,648

[a] Includes Connecticut, New Hampshire, Pennsylvania, South Carolina, and West Virginia, with 1 establishment; Maryland and Ohio, with 2 establishments each.

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MANILA PAPER—Continued.

TABLE 4.—*Total cost of manufacturing and per cent of total cost represented by wages materials, and other expenses.*

State.	Number of establishments.	Total cost of manufacturing.	Cost of production represented by—					
			Wages.		Materials.		All other expenses.	
			Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.
Total	32	$10,377,170	$1,903,830	18.3	$6,950,747	67.0	$1,522,593	14.7
Maine	2	843,265	196,708	23.3	515,530	61.1	131,027	15.6
Massachusetts	2	205,711	44,611	21.7	117,648	57.2	43,452	21.1
Michigan	2	894,797	220,403	24.7	475,547	53.1	198,847	22.2
New York	8	2,089,260	342,229	16.4	1,426,454	68.3	320,577	15.3
Vermont	4	666,350	84,851	12.7	491,343	73.8	90,156	13.5
Wisconsin	5	3,385,212	673,649	19.9	2,319,144	68.5	392,419	11.6
All other [a]	9	2,292,575	341,379	14.9	1,605,081	70.0	346,115	15.1

[a] Includes Connecticut, New Hampshire, Pennsylvania, South Carolina, and West Virginia with 1 establishment; Maryland and Ohio with 2 establishments each.

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MANILA PAPER—Continued.

TABLE 5.—*Comparative monthly average selling prices per ton by States: 1906 and 1907.*

State.	Year.	Average price per ton.											
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Maine	1907	$51.52	$54.03	$54.30	$55.80	$58.02	$57.21	$57.19	$60.03	$60.69	$60.52	$60.34	$61.18
	1906	50.63	49.78	50.95	50.27	51.03	51.26	52.28	50.35	49.45	51.20	51.69	51.31
Massachusetts	1907	52.00	52.00	52.00	52.00	53.25	53.25	53.25	53.25	54.50	54.50	54.50	54.50
	1906	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00	54.00	56.50	56.50
Michigan	1907	46.40	46.40	46.40	47.40	47.40	47.40	47.40	53.40	53.40	53.40	53.40	53.40
	1906	36.60	36.60	36.60	36.60	26.60	36.60	36.60	36.60	36.60	36.60	36.60	41.60
New York	1907	41.62	42.78	43.60	43.95	44.53	44.49	45.28	46.21	47.32	47.52	47.75	48.16
	1906	39.28	39.54	39.58	39.66	39.87	40.03	40.46	40.68	40.49	41.07	41.58	41.48
Vermont	1907	59.05	59.09	60.21	60.19	60.68	61.31	61.50	62.80	64.71	64.51	65.33	65.04
	1906	57.69	57.89	57.36	57.23	58.06	57.33	57.21	57.30	57.41	58.04	58.65	59.04
Wisconsin	1907	41.66	41.80	42.55	43.39	43.93	45.60	45.90	46.52	46.28	47.57	47.86	46.92
	1906	36.40	36.87	36.48	36.98	36.38	37.40	37.98	37.79	37.26	38.34	39.39	40.12
All other[a]	1907	45.71	46.07	46.50	46.70	47.93	48.02	48.57	49.26	50.15	50.83	50.89	50.40
	1906	44.34	44.27	44.14	44.10	44.10	44.14	44.14	44.17	44.16	44.65	44.59	44.79

[a] Includes Connecticut, Maryland, New Hampshire, Ohio, Pennsylvania, South Carolina, and West Virginia.

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MANILA PAPER—Continued.

TABLE 6.—*Number of plants returned, total yearly capacity, average capacity, and average number of days operated in 1907, distributed by States.*

State.	Plants reported (number).	Yearly capacity (short tons).		Average capacity (short tons).		Average number of days operated.
		Paper.	Pulp.	Paper.	Pulp.	
Total	42	250,218	177,063	7,359	8,048	284
Maine	2	17,250	24,500	8,625	12,500	304
Massachusetts	2	4,800	2,500	2,400	2,500	291
Michigan	2	16,900	17,500	8,450	8,750	288
New York	10	56,030	34,000	7,004	5,667	284
Vermont	4	15,600	.....	3,900	.....	264
Wisconsin	10	86,659	78,363	12,380	9,795	281
All other[a]	12	52,979	20,200	4,415	6,733	290

[a] Includes Connecticut, New Hampshire, Pennsylvania, South Carolina, and West Virginia with one establishment; Maryland and Ohio with two establishments each.

WRITING PAPER.

TABLE 1.—*Number of establishments returned, capital invested, salaried employees and wage-earners, rents and taxes, by States, 1907.*

State.	Number of establishments.	Capital.	Salaried employees.			Wage-earners.			Rent,[1] taxes, etc.
			Number.	Salary.	Average salary.	Number.	Wages.	Average wage.	
Total	39	$86,452,047	600	$1,352,847	$4,509	13,459	$6,738,534	$501	$3,844,856
Connecticut	2	307,310	3	4,740	1,580	70	45,504	650	14,228
Massachusetts	22	60,207,222	411	856,203	2,083	8,421	3,973,471	472	1,883,133
Michigan	2	2,622,028	33	64,444	1,953	887	437,310	493	218,589
Ohio	3	1,832,580	22	40,820	1,855	435	192,164	442	150,595
Pennsylvania	3	2,772,384	32	85,946	2,686	725	335,568	463	262,095
Vermont	2	432,277	8	16,352	2,044	85	49,472	582	32,095
Wisconsin	3	2,227,063	30	61,610	2,054	637	298,913	469	151,494
New York and Washington	2	16,051,173	61	222,732	3,651	2,199	1,406,132	639	1,152,929

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TABLE 2.—*Number of establishments returned, cost of materials used, expressed by kind, quantity, and value, by States: 1907.*

COST OF MATERIALS USED DURING THE YEAR.

State.	Number of establishments.	Wood for pulp.			Ground wood fiber.			Sulphite.			Soda.			All other.			Fuel (value).	Other materials (value).	Total cost (amount).
		Cords.	Value.	Average price per cord.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.			
Total	39	267,728	$2,053,956	$7.67	9,849	$204,247	$20.74	89,962	$4,699,336	$52.24	31,215	$1,347,633	$43.17	15,717	$368,477	$23.44	$2,258,446	$12,944,694	$23,876,789
Connecticut	2	.....	.....	.....	.....	.....	.....	550	28,353	51.55	253	10,883	43.02	1,810	21,453	11.85	19,102	78,573	158,364
Massachusetts	22	.....	.....	.....	5,292	120,438	22.76	57,169	3,098,686	54.20	22,315	962,224	43.12	.....	.....	.....	1,037,039	8,388,251	13,606,638
Michigan	2	.....	.....	.....	505	12,118	24.00	9,372	450,093	48.02	5,979	256,899	42.97	13,907	347,024	24.95	199,205	611,306	1,876,645
Ohio	3	3,460	36,427	10.53	251	5,023	20.01	8,512	395,486	46.46	1,349	59,467	44.08	.....	.....	.....	81,547	379,894	957,844
Pennsylvania	3	34,239	260,792	7.62	.....	.....	.....	5,423	243,366	44.88	460	20,065	43.62	.....	.....	.....	160,607	539,918	1,224,748
Vermont	2	.....	.....	.....	3,755	64,972	17.30	2,596	91,965	35.43	26	1,124	43.23	.....	.....	.....	17,577	25,063	200,701
Wisconsin	3	17,569	157,227	8.95	.....	.....	.....	6,128	379,725	61.97	745	32,042	43.01	.....	.....	.....	112,777	626,379	1,308,150
New York and Washington	2	212,460	1,599,510	7.53	46	1,696	37.18	212	11,662	55.01	88	4,929	56.01	.....	.....	.....	630,592	2,295,310	4,543,699

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WRITING PAPER—Continued.

TABLE 3.—*Number of establishments returned, quantity and value of manufactured products, by States: 1907.*

QUANTITY AND VALUE OF MANUFACTURED PRODUCTS.

State.	Number of establishments.	News-print paper.						Writing paper.			Pulp and fiber sold.			All other products (value).	Total (value).
		In rolls.			In sheets.										
		Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.		
Total	39	.....	.....	.....	.....	.....	.....	379,590	$39,343,362	$103.64	25,333	$1,127,342	$44.50	$64,389	$40,535,093
Connecticut	2	.....	.....	.....	.....	.....	.....	2,583	279,417	108.18	.....	.....	.....	.....	279,417
Massachusetts	22	.....	.....	.....	.....	.....	.....	167,773	23,089,130	137.62	.....	.....	.....	2,213	23,091,343
Michigan	2	.....	.....	.....	.....	.....	.....	40,277	2,971,802	73.78	.....	.....	.....	.....	2,971,802
Ohio	3	.....	.....	.....	.....	.....	.....	16,324	1,482,725	90.83	140	5,810	41.50	3,182	1,491,717
Pennsylvania	3	.....	.....	.....	.....	.....	.....	28,114	2,115,146	75.23	.....	.....	.....	.....	2,115,146
Vermont	2	.....	.....	.....	.....	.....	.....	5,988	346,070	57.79	.....	.....	.....	.....	346,070
Wisconsin	3	.....	.....	.....	.....	.....	.....	14,846	1,878,364	126.52	54.22	269,982	49.80	.....	2,148,346
New York and Washington	2	.....	.....	.....	.....	.....	.....	103,685	7,180,708	69.26	197.71	851,550	43.07	58,994	8,091,252

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WRITING PAPER—Continued.

TABLE 4.—*Total cost of manufacturing and per cent of total cost represented by wages, materials, and other expenses.*

State.	Number of establishments.	Total cost of manufacturing.	Cost of production expressed by—					
			Wages.		Materials.		All other expenses.	
			Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.
Total	39	$35,856,601	$6,738,534	18.8	$23,876,789	66.6	$5,241,278	14.6
Connecticut	2	222,831	45,504	20.4	158,364	71.1	18,963	8.5
Massachusetts	22	20,363,021	3,973,471	19.5	13,606,638	66.8	2,782,912	13.7
Michigan	2	2,596,979	437,310	16.8	1,876,645	72.3	283,024	10.9
Ohio	3	1,321,133	192,164	14.5	957,844	72.5	171,125	13.0
Pennsylvania	3	1,908,357	335,568	17.6	1,224,748	64.2	348,041	18.2
Vermont	2	298,621	49,472	16.6	200,701	67.2	48,448	16.2
Wisconsin	3	1,820,167	298,913	16.4	1,308,150	71.9	213,104	11.7
New York and Washington	2	7,325,492	1,406,132	19.2	4,543,699	62.0	1,375,661	18.8

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WRITING PAPER—Continued.

TABLE 5.—*Comparative monthly average selling prices per ton, by States: 1906 and 1907.*

State.	Year.	Average price per ton.											
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Connecticut	1907	$102.13	$103.25	$104.25	$107.00	$109.00	$104.50	$103.17	$107.90	$107.75	$103.25	$107.00	$105.50
	1906	102.50	102.00	102.00	103.00	94.25	102.00	101.00	101.00	101.00	106.75	100.75	103.75
Massachusetts	1907	270.45	271.84	274.88	276.18	276.68	275.62	278.26	275.24	277.86	277.24	276.85	275.06
	1906	269.31	268.70	267.17	267.31	268.17	267.73	267.82	267.83	268.33	265.33	267.42	266.34
Michigan	1907	85.30	85.97	86.97	88.30	88.30	88.30	88.87	88.87	88.87	88.87	88.21	88.21
	1906	82.77	82.77	82.77	82.77	82.77	82.77	83.07	83.07	84.07	84.07	84.07	84.07
Ohio	1907	72.20	72.60	75.60	74.40	77.00	76.20	76.80	82.40	74.80	76.00	77.60	77.80
	1906	74.40	74.60	74.00	76.20	75.80	75.80	75.80	75.80	71.00	73.20	71.80	71.80
Pennsylvania	1907	74.40	74.33	74.73	76.80	77.40	77.67	77.80	77.00	77.20	77.00	78.53	78.20
	1906	74.00	73.77	73.63	73.17	73.57	73.17	73.43	72.90	72.83	74.07	74.13	73.93
Vermont	1907	60.50	60.50	60.50	60.00	60.00	60.00	61.25	62.50	65.00	65.00	65.00	63.75
	1906	58.75	58.75	57.75	57.75	58.75	58.75	58.75	58.75	58.75	58.75	58.75	58.75
Wisconsin	1907	142.04	142.00	141.69	143.19	143.83	143.60	144.31	144.62	143.53	144.24	143.73	144.71
	1906	137.80	137.22	137.23	137.63	137.23	137.71	137.73	137.12	137.07	137.46	137.93	137.36
New York and Washington	1907	94.76	95.51	95.70	96.29	95.87	92.25	90.12	91.33	93.73	91.73	91.32	89.39
	1906	92.57	92.74	92.35	92.55	92.01	92.39	92.03	92.05	92.52	92.13	92.23	92.86

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WRITING PAPER—Continued.

TABLE 6.—*Number of plants returned, total yearly capacity, average capacity, and average number of days operated in 1907, distributed by States.*

State.	Plants reported (number).	Yearly capacity (short tons).		Average capacity (short tons).		Average number of days operated.
		Paper.	Pulp.	Paper.	Pulp.	
Total	72	427,670	155,720	6,682	14,156	283
Connecticut	2	2,840	.....	1,420	.....	268
Massachusetts	44	188,170	.....	4,277	.....	281
Michigan	4	44,000	.....	11,000	.....	297
Ohio	3	19,200	3,300	6,400	3,300	287
Pennsylvania	3	32,150	23,685	10,717	7,895	288
Vermont	2	8,000	.....	4,000	.....	239
Wisconsin	6	17,360	9,000	2,910	9,000	287
New York and Washington	8	115,850	119,735	19,308	19,956	296

SPECIALTIES.

TABLE 1.—*Number of establishments returned, capital invested, salaried employees and wage-earners, rents and taxes, by States: 1907.*

State.	Number of establishments.	Capital.	Salaried employees.			Wage-earners.			Rent, taxes, etc.
			Number.	Salary.	Average salary.	Number.	Wages.	Average wage.	
Total	56	$22,125,698	350	$572,559	$1,636	5,156	$2,571,334	$499	$1,688,593
Connecticut	4	915,622	21	26,538	1,264	259	134,474	520	88,504
Massachusetts	6	1,610,922	50	86,806	1,776	691	333,576	483	188,472
Michigan	6	3,919,755	43	61,905	1,440	777	343,560	442	221,451
New Hampshire	3	373,061	8	14,100	1,763	62	30,098	485	16,353
New Jersey	2	636,528	14	30,402	2,172	172	93,451	543	30,578
New York	16	3,687,611	82	140,083	1,708	812	422,654	521	345,193
Ohio	4	1,063,705	17	25,955	1,527	209	101,078	484	111,314
Pennsylvania	6	4,399,450	44	63,874	1,452	887	454,309	512	293,306
Wisconsin	5	3,493,122	40	64,224	1,606	773	392,729	508	246,089
All other[a]	4	2,025,922	31	58,672	1,893	514	265,405	516	147,333

[a] Includes California and South Carolina with 1 establishment each, and West Virginia with 2.

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SPECIALTIES—Continued.

TABLE 2.—*Number of establishments returned, cost of materials used expressed by kind, quantity, and value, by States: 1907.*

COST OF MATERIALS USED DURING THE YEAR.

State.	Number of establishments.	Wood for pulp.			Ground wood fiber.			Sulphite.			Soda.			All other.			Fuel (value).	Other materials (value).	Total cost (amount).
		Cords.	Value.	Average price per cord.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.			
Total	56	159,088	$1,135,786	$7.14	26,615	$574,378	$21.58	40,584	$1,818,449	$44 81	3,243	$141,597	$43.66	20,952	$533,490	$25.46	$1,098,239	$3,629,366	$8,931,305
Connecticut	4							594	29,098	48 99							45,244	316,020	390,362
Massachusetts	6	2,000	12,000	6 00	1,202	26,021	21 65	5,020	251,104	50 02	719	31,479	43 78	1,833	57,872	31 59	128,709	588,065	1,095,250
Michigan	6	22,995	121,240	5 27	4,915	108,051	21 98	2,765	108,018	39 07	783	33,622	42 95	10,332	278,834	26 99	213,283	459,981	1,323,029
New Hampshire	3				202	4,489	22.22	323	16,316	50 51	93	3,983	42 82	852	23,789	27 92	14,407	58,692	121,676
New Jersey	2							162	6,470	39 94				1,150	44,850	39.00	38,027	170,893	260,240
New York	16	5,837	74,082	12.69	6,783	143,743	21.19	9,617	407,757	42 40	575	25,717	44 73	4,568	79,680	17.44	157,074	633,432	1,521,485
Ohio	4							1,531	80,714	52 72	382	16,444	43 05				22,199	243,778	363,135
Pennsylvania	6	66,034	484,000	7 33	128	3,079	24 05	2,930	147,698	50.41	465	19,995	43 00				172,157	442,126	1,269,055
Wisconsin	5	27,403	303,257	11 07	12,240	263,856	21 56	17,362	758,416	43 68	226	10,357	45.83	2,217	48,465	21.86	162,901	248,383	1,795,635
All other[a]	4	34,819	141,207	4.06	1,147	25,139	21 92	280	12,858	45 92							144,238	467,996	791,438

[a] Includes California and South Carolina with 1 establishment each and West Virginia with 2.

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TABLE 3.—*Number of establishments returned, quantity and value of manufactured products, by States: 1907.*

QUANTITY AND VALUE OF MANUFACTURED PRODUCTS.

State.	Number of establishments.	News-print paper.						Specialties.			Pulp and fiber sold.			All other products, value.	Total value.
		In rolls.			In sheets.										
		Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.	Tons.	Value.	Average price per ton.		
Total	56	13,227	$517,108	$39.09	4,161	$195,834	$47.06	206,324	$13,896,310	$67.35	21,461	$729,923	$34.01	$96,795	$15,435,970
Connecticut	4							5,990	716,279	119.58					716,259
Massachusetts	6							23,454	1,818,310	77.53					1,818,310
Michigan	6							39,827	2,063,608	51.81	2,097	63,691	30.37	66,407	2,193,706
New Hampshire	3							2,205	210,845	95.62					210,845
New Jersey	2							11,815	500,911	42.40					500,911
New York	16	150	7,267	48.45	350	16,958	48.45	30,103	2,630,127	87.37	1,144	21,974	19.21		2,676,326
Ohio	4							12,701	662,545	52.17				1,600	664,145
Pennsylvania	6	825	43,867	53.17	415	24,113	58.10	25,844	1,967,991	76.15	9,134	374,000	40.95	13,486	2,423,457
Wisconsin	5	12,252	465,974	38.03	3,396	154,713	45.57	28,150	1,908,074	67.78	9,086	270,258	29.74	15,302	2,814,371
All other[a]	4							26,235	1,417,640	54.04					1,417,640

[a] Includes California and South Carolina with 1 establishment each and West Virginia with 2.

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SPECIALTIES—Continued.

TABLE 4.—*Total cost of manufacturing and per cent of total cost represented by wages, materials, and other expenses.*

State.	Number of establishments.	Total cost of manufacturing.	Cost of production expressed by—					
			Wages.		Materials.		All other expenses.	
			Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.
Total	56	$13,816,358	$2,571,334	18.6	$8,931,305	64.6	$2,313,719	16.8
Connecticut	4	653,015	134,474	20.6	390,362	59.8	128,179	19.6
Massachusetts	6	1,704,104	333,576	19.6	1,095 350	64.3	275,278	16.1
Michigan	6	1,949,945	343,560	17.6	1,323,029	67.9	283,356	14.5
New Hampshire	3	182,227	30,098	16.5	121,676	66.8	30,453	16.7
New Jersey	2	414,671	93,451	22.5	260.240	62.7	60,980	14.7
New York	16	2,442,729	422,654	17.3	1,521,485	62.3	498,590	20.4
Ohio	4	606,275	101,078	16.7	303.135	50.9	142,062	23.4
Pennsylvania	6	2,082,579	454.309	21.8	1,209,055	60.9	359,215	17.3
Wisconsin	5	2,498.677	392,729	15.7	1,795.635	71.9	310,313	12 4
All other a	4	1,282,136	265,405	20.7	791,438	61.7	225,293	17.6

a Includes California and South Carolina with 1 establishment each and West Virginia with 2.

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TABLE 5.—*Comparative monthly average selling prices per ton, by States: 1906 and 1907.*

State.	Year.	Average price per ton.											
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Connecticut	1907	$155.00	$155.00	$155.00	$155.00	$155.00	$155.00	$155.00	$155.00	$155.00	$155.00	$155.00	$155.00
	1906	142.50	142.50	142.50	142.50	145.00	145.00	145.00	145.00	145.00	155.00	155.00	155.00
Massachusetts	1907	126.88	125.92	125.80	125.84	125.92	128.80	128.84	128.80	128.74	128.58	128.90	128.82
	1906	122.31	121.67	122.43	122.43	122.43	122.11	123.71	122.27	122.31	122.99	125.91	124.43
Michigan	1907	48.42	46.54	50.52	50.97	51.70	52.23	52.71	54.96	53.75	54.11	55.51	55.68
	1906	45.69	45.33	45.21	45.51	45.32	45.04	44.73	44.67	44.26	45.13	47.49	48.42
New Hampshire	1907	96.09	96.09	96.09	96.09	96.09	96.09	96.09	96.09	96.09	96.09	96.09	96.09
	1906	95.87	95.87	95.87	95.87	95.87	95.87	95.87	95.87	95.87	95.87	95.87	95.87
New Jersey	1907	70.13	70.75	70.75	71.25	71.25	71.25	71.25	71.75	72.75	73.25	74.00	74.00
	1906	66.63	66.13	68.69	67.69	67.44	68.69	68.69	68.69	68.75	69.75	69.88	68.75
New York	1907	112.54	111.70	109.96	111.78	109.42	113.08	113.03	116.80	116.28	111.38	111.24	114.68
	1906	113.99	112.05	112.58	109.04	114.00	110.33	111.77	112.97	110.32	110.64	112.13	110.87
Ohio	1907	84.00	84.00	84.00	84.00	84.00	84.00	84.00	84.00	84.00	84.00	84.00	84.00
	1906	81.00	81.00	81.00	81.00	81.00	81.00	81.00	81.00	81.00	81.00	81.00	81.00
Pennsylvania	1907	74.83	74.83	74.83	74.83	75.50	75.50	75.50	76.50	77.33	79.00	79.00	79.00
	1906	74.17	74.17	74.17	74.17	74.17	74.17	74.83	74.83	74.83	74.83	74.83	74.83
Wisconsin	1907	58.19	59.98	60.56	60.20	61.65	61.45	62.03	62.26	62.26	63.17	61.68	62.97
	1906	57.40	57.65	57.21	57.42	57.01	56.19	56.44	57.11	56.79	57.50	57.57	57.61
All other [a]	1907	41.00	42.10	42.33	41.88	41.82	41.20	41.17	43.77	42.92	42.87	43.60	44.02
	1906	37.77	37.42	37.70	37.84	37.60	38.33	38.02	39.47	38.60	39.13	38.62	39.85

[a] Includes California, South Carolina, and West Virginia.

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SPECIALTIES—Continued.

TABLE 6.—*Number of plants returned, total yearly capacity, average capacity, and average number of days operated in 1907, distributed by States.*

State.	Plants reported (number).	Yearly capacity (short tons).		Average capacity (short tons).		Average number of days operated.
		Paper.	Pulp.	Paper.	Pulp.	
Total	65	270,215	101,956	4,222	7,843	270
Connecticut	5	7,531	.....	1,506	.....	294
Massachusetts	6	25,700	2,500	4,283	2,500	289
Michigan	6	53,663	15,000	8,944	15,000	289
New Hampshire	3	2,500	.....	833	.....	299
New Jersey	2	12,900	.....	6,450	.....	285
New York	19	36,580	7,600	1,925	2,533	283
Ohio	7	18,855	.....	2,694	.....	227
Pennsylvania	6	29,040	33,000	4,840	16,500	261
Wisconsin	6	44,746	23,656	7,458	7,885	298
All other[a]	5	38,700	20,200	9,675	6,733	299

[a] Includes California and South Carolina with 1 establishment each and West Virginia with 2.

STATISTICS OF 33 MILLS SUBMITTING INCOMPLETE REPORTS.

TABLE 1.—*Number of establishments returned, capital invested, salaried employees and wage-earners, rents, and taxes: 1907.*

	Total number reporting.	Capital.	Salaried employees.		Wage-earners.		Rent, taxes, etc.
			Number.	Salaries.	Number.	Wages.	
Number of establishments	33	23	25	31	31	33	30
1907	.....	$59,956,422	248	$457,310	4,992	$2,335,192	$1,473,049

NOTE.—The large amount of capital is accounted for by the fact that a number of the mills reported capital invested in other enterprises than the paper industry, the segregation of which could not be made.

TABLE 2.—*Number of establishments returned, cost of materials used, expressed by kind, quantity, and value, 1907.*

COST OF MATERIALS USED DURING THE YEAR.

	Total number reporting.	Wood for pulp.		Ground-wood fiber.		Sulphite.	
		Cords.	Value.	Tons.	Value.	Tons.	Value.
Number of establishments	33	7	7	7	9	9	13
1907	.....	161,399	$1,489,760	14,164	$325,524	6,537	$536,005

	Total number reporting.	Soda.		All other.		Fuel (value).	Other materials (value).	Total cost (value).
		Tons.	Value.	Tons.	Value.			
Number of establishments	33	4	6	1	2	30	33	33
1907	.....	1,534	$105,710	3,700	$106,148	$986,855	$4,120,839	$7,670,841

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STATISTICS OF 33 MILLS SUBMITTING INCOMPLETE REPORTS—Cont'd.

TABLE 3.—*Number of establishments returned, quantity and value of manufactured products, 1907.*

QUANTITY AND VALUE OF MANUFACTURED PRODUCTS.

	Total number reporting.	All varieties of paper.		Pulp and fiber sold.		All other products.	Total value (amount).
		Tons.	Value.	Tons.	Value.		
Number of establishments..	31	24	27	3	4	8	31
1907.....		132,836	$9,173,807	21,805	$885,650	$3,483,452	$13,542,909

TABLE 4.—*Total cost of manufacturing paper and pulp, per cent of total cost represented by wages, materials, and other expenses.*

Number of establishments reporting.	Total cost of manufacturing (amount).	Cost of production represented by—					
		Wages.		Materials.		All other expenses.	
		Amount.	Per cent.	Amount.	Per cent.	Amount.	Per cent.
31	$12,334,560	$2,288,062	18.5	$7,535,812	61.1	$2,510,686	20.4

TABLE 5.—*Number of plants returned, total yearly capacity, average capacity, and average number of days operated in 1907.*

Number of plants reporting.	Yearly capacity (short tons).		Average capacity (short tons).		Average number days operated in 1907.
	Paper.	Pulp.	Paper.	Pulp.	
50	302,229	130,900	7,371	10,069	272

LABOR COST PER TON OF PAPER.

Average labor cost per ton of paper manufactured during 1907, showing materials used and product obtained, as reported by schedules submitted to the select committee.

State.	Labor cost per ton.	Materials used.	Products.
			Paper only.
Connecticut.....	$16.50	Sulphite, soda, all other wood fiber.....	Fine writing paper.
	20.36	Sulphite, soda, all other materials.....	Blotting paper.
	41.04	Sulphite and rags.....	Cover linen, tissue.
	11.93	Small amount sulphite.....	Wrapping pattern, red fiber.
	15.00	Bagging, waste, etc.....	Wrapping.
	21.11	All other materials.....	Book and writing paper.
	7.60	Waste paper.....	Binders' board.
	6.50	.....do.....	Card middling.
Illinois.....	4.06	Small amount sulphite.....	Box board.
	10.00	Sulphite and all other materials.....	Do.
	5.06	Straw.....	Wrapping.
	9.51	Rags, waste paper.....	Building paper.
	5.42	Straw, paper.....	Sheathing, straw paper.

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LABOR COST PER TON OF PAPER—Continued.

Average labor cost per ton of paper manufactured during 1907, showing materials used and product obtained, as reported by schedules submitted to the select committee—Cont'd.

State.	Labor cost per ton.	Materials used.	Products.
			Paper and pulp.
Maine	$6.38	Ground wood and sulphite	Wood pulp board.
	6.00	do	Manila wrapping.
	6.94	do	Bag and wrapping
	19.50	Sulphite and wood for pulp	Magazine and coated magazine papers.
			Paper only.
	8.61	All other materials	Leather board.
Massachusetts	9.04	Ground wood, sulphite, and soda	Card, royal bristol, and book.
	7.38	do	Card Nos. 2 and 4, book No. 3.
	14.84	do	Envelope, blanks, bond.
	24.50	do	Writing, loft, and machine-dried.
	14.68	Ground wood, sulphite, soda, and all other.	Book, No. 1 bristol, coating.
	11.37	Sulphite and soda	Book.
	22.26	do	Nos. 1 and 2 envelope.
	37.80	do	Writing.
	67.65	Small amount sulphite	Ledger.
	34.22	Sulphite (imported)	Writing, bond Nos. 1, 2, and 3.
	8.42	Sulphite and ground wood	Carpet lining.
	4.36	Ground wood sulphite, and old papers.	Box board.
	22.56	Ground wood, sulphite, and all other wood fiber.	Pattern, flour sacks, and specialties.
	9.46	do	Bristol, blanks.
	19.87	do	Blotting and absorbent papers.
	49.44	Sulphite and soda	Bond, ledger.
	26.58	do	Book, cover, bond.
	38.10	Sulphite, soda, and all other materials	High-grade papers.
	91.26	Sulphite and all other materials	Bond, ledger.
	4.46	do	Carpet lining, roofing felt.
	65.00	do	Bond linen, onionskins.
	46.20	Sulphite, soda, rags	Bond, index.
	27.34	Sulphite, screenings, flax waste, etc	Fiber board.
	14.29	Straw and all other materials	Strawboard, leather board.
	87.00	Cotton rags	Bristol, Nos. 1 and 2, flat writing.
	33.94	Rags	Ledger and bonds.
	47.12	do	Fine, superfine, bonds, ledger
	95.00	do	Extra fine writing.
	75.33	do	Bank note, bond, and parchment.
	76.84	All other materials	Linen, ledger, and record.
	45.00	do	Specials.
	76.54	do	Ledger, linen, and bonds.
			Paper and pulp.
	10.00	Ground wood and sulphite	Manila and bristol.
	14.34	Wood for pulp, sulphite, soda, and all other materials.	Surface-coated paper.
	6.44	Wood for pulp and all other materials	News paper.
			Paper only.
Michigan	5.89	Ground wood and sulphite	
	12.14	Ground wood, sulphite, and soda	Book.
	10.93	do	Book, catalogue.
	11.83	do	M. F. and S., and S. C. book.
	12.55	Ground wood, sulphite, soda, and all other.	Coating, bond, writing.
	11.15	All other wood fiber	
	4.72	Ground wood, sulphite, and all other materials.	Card, middles, and box board.
			Paper and pulp.
	8.12	Sulphite	Fiber, wrappings, and manila.
	14.24	Ground wood and sulphite	News.
	12.04	Ground wood	Water finish, dry finish, and bleached.
	5.62	Ground wood. (Cost given for paper mill only.)	
	14.10	Ground wood and all other	
	9.26	Wood for pulp, ground wood, sulphite, and soda.	Book paper.

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LABOR COST PER TON OF PAPER—Continued.

Average labor cost per ton of paper manufactured during 1907, showing materials used and product obtained, as reported by schedules submitted to the select committee—Cont'd.

State.	Labor cost per ton.	Materials used.	Products.
			Paper only.
Michigan	$3.63	All other materials	Red rosin sheathing, chip rolls, jute-lined chips.
	13.50	Scrap papers	Binder board.
			Pulp and paper.
Minnesota	7.86	Ground wood and sulphite	News.
	16.58	Sulphite	Do.
	6.60	Wood for pulp, ground wood, sulphite, and soda.	Do.
			Paper only.
New Hampshire	12.50	Ground wood and sulphite	White and manila tissue.
	16.93	Sulphite and soda	Book Nos. 1, 2, 3, and 4.
	11.60	do	Book.
	3.65	Ground wood and sulphite	Wrapping paper.
			Pulp and paper.
	8.99	Ground wood, sulphite, and soda	No. 1 news.
			Paper only.
New Jersey	11.50	Sulphite	Book.
	6.54	Small amount of sulphite	Chip board, manila, and binders' board.
	28.00	All other wood fiber	White and colored tissue (common and super).
	48.46	Manila, hemp, Russian jute	Railroad commercial, copying.
	11.23	All other materials	Binders' boards.
	22.40	Hemp, cotton, and paper	Trunk, friction binders', and cloth board.
	16.25	Waste, all other materials	Binders' boards.
	6.16	Mixed papers	Box board.
New York	4.80	Ground wood and sulphite	Heavy wrappers, filled board.
	6.43	do	Waterproof manila.
	12.40	do	Toilet papers.
	40.83	Ground wood, sulphite, and soda	Filter and picture mounts.
	10.12	do	Ingrams, duplex.
	58.03	Sulphite and soda	Tissue (includes salaries; labor alone, $37.72).
	17.00	Sulphite	Tissue.
	25.23	Sulphite, soda, rags, paper shavings	Empire, thistle, No. 1 silver, white copying.
	6.06	All other wood fiber	Card middles, Nos. 1, 2, 3, and 4.
	6.05	Ground wood and sulphite	Tag board, wrappers.
	5.44	do	Bag wrapping paper.
	26.64	Ground wood, sulphite, and soda	Cover, special papers.
	5.35	Ground wood, sulphite, and all other materials.	Box board.
	4.77	Ground wood, sulphite, and all other wood fiber.	Butcher and wrapping papers.
	5.80	Ground wood, sulphite, soda, and all other wood fiber	Wrapping papers.
	9.90	Ground wood, sulphite, soda, cotton rags, and paper.	News and high grade papers.
			Pulp and paper.
	5.10	Ground wood and sulphite	News.
	6.17	do	News and manila.
	6.61	do	News.
	5.87	do	News and hanging.
	8.77	do	Do.
	5.23	do	News and bag.
	4.82	do	
	5.26	do	News. Does not include any labor of making sulphite or woods labor.
	4.75	do	Manila board.
	10.41	do	Ingrams, hanging, white and colored.
	8.00	do	Specialties.
	12.28	do	Tissues.
	9.25	do	Manila and fiber, wrapping.

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LABOR COST PER TON OF PAPER—Continued.

Average labor cost per ton of paper manufactured during 1907, showing materials used and product obtained, as reported by schedules submitted to the select committee—Cont'd.

State.	Labor cost per ton.	Materials used.	Products.
			Pulp and paper—Continued.
New York	$17.56	Sulphite	Book and similar papers.
	13.95	do	Manila tissue.
	12.32	Wood for pulp	Writing, cover, machine finish.
	8.04	do	News.
	6.02	Ground wood and sulphite	Bag and hanging papers.
	3.89	do	Do.
	9.51	Sulphite and soda	Book papers.
	8.00	Wood for pulp, ground wood, sulphite, and all other wood fiber.	News paper, chip and manila lined board.
	8.38	Wood for pulp and sulphite	News and hanging papers.
	8.17	Wood for pulp and ground wood	News paper.
	7.42	Wood for pulp, ground wood, and sulphite.	Do.
			Paper only.
	5.50	Scrap papers	Box boards.
	9.00	Straw	Straw board.
	39.20	Rags	White tissue.
	7.54	All other materials	Paper boards.
	9.96	Mixed papers	Boards.
	7.34	Sulphite screenings	Screening papers.
	10.00	Sulphite screenings and rags	Rags, screenings, manila papers.
	7.84	Old manila rope	Rope manila papers.
	34.02	Bagging, etc	Bleached manila and antirust papers.
Ohio	8.58	Ground wood and sulphite and soda	Box board.
	14.00	do	Rope, jute, sugar-bag, linen paper, and wrapping.
	13.04	Ground wood and sulphite	Waterleaf Nos. 18, 22, 30.
	5.00	Ground wood, sulphite, and all other materials.	White box board.
	5.35	Sulphite and straw	Straw and wrapping papers.
			Paper and pulp.
	7.60	Sulphite and soda	Machine finished and super book paper.
			Paper only.
	6.00	Rags	Rag, lining, wood felt.
	9.35	do	Wrapping.
	23.00	Rags and old newspapers	Colored specialties.
	5.90	Straw	Butchers', bakers', and tissue.
	4.02	Waste paper	Folding box board.
	11.65	Straw and mixed papers	Straw paper and box board.
Pennsylvania	9.37	Ground wood and sulphite	Wrapping, Nos. 1 and 2, rope.
	23.94	Small amount sulphite	News, poster, cover, book, wrapping.
	18.56		
	17.95	Soda and all other materials	Book, rope, and manila.
	15.72	Sulphite, soda, rags	Rag waterleaf.
	21.48	All other wood fiber	Cartridge paper.
	6.25	Ground wood and sulphite	White hanging paper.
	8.12	Sulphite, waste paper	Wrapping specialties.
			Pulp and paper.
	10.91	Sulphite and soda	Writing, supercalender, and machine finished book.
	18.00	Ground wood, sulphite, and soda	Manila fibers, felt papers.
	20.93	Sulphite and sulphate, foreign	Machine finish, coated book.
	8.80	Wood for pulp, waste paper	News, Nos. 1 and 2; fiber mill wraps, paper boards.
	16.64	Wood for pulp, all other materials	Book, writing paper.
	11.66	Wood for pulp and sulphite	Fiber and screenings, paper.
	11.34	Wood pulp and fiber	Book and wall paper.
	11.15	Ground wood, sulphite, soda, and all other wood fiber.	
			Paper only.
	5.97	Waste paper	Sheathing, wrapping.
	50.00	Do not use wood pulp	Tissue.
	4.65	Straw	Strawboard.
	3.90	All other materials	Dry roofing felt.
	4.32	Rags, shoddy, and papers	Roofing felts, sheathing papers.
	8.53	Waste paper	Binders' boards.

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LABOR COST PER TON OF PAPER—Continued.

Average labor cost per ton of paper manufactured during 1907, showing materials used and product obtained, as reported by schedules submitted to the select committee—Cont'd.

State.	Labor cost per ton.	Materials used.	Products.
			Paper only—Continued.
Vermont	[a]$21.80	Ground wood and sulphite	Colored wall.
	4.95	do	Manila.
	5.50	do	Do.
	6.71	do	Do.
	6.19	Ground wood, sulphite, and soda	No. 2 R. R. writing and No. 2 wrapping.
Virginia	12.41	Sulphite and soda	Blotting.
	16.50	Sulphite, soda, and rags	Do.
	6.90	Small amount sulphite, old papers	Plain and manila lined chip board.
	6.43	Pulp and soda fiber	Pulp and paper card middles.
West Virginia	31.50	Small amount sulphite	No. 1 rope, manila.
	10.57	Wood pulp and fiber	Pulp and paper, manila, fiber and screenings papers.
	9.55	All other materials	Wrapping, manila rope.
	4.32	Waste paper	Chip board.
Wisconsin	3.96	Ground wood and sulphite	News.
	7.87	do	News, M. F. book, and tissue.
	4.86	do	
	8.81	Ground wood, sulphite, and soda	Book.
	9.32	Ground wood, sulphite, and all other wood fibers.	Tissue, white colors; manila, Nos. 1 and 2.
	22.02	Sulphite and soda	Envelope and superfine bond.
	18.22	do	Bond, Nos. 1 and 2; flats ledger.
			Pulp and paper.
	5.94	Ground wood and sulphite	News.
	6.79	do	News, manila, other wrappers
	8.14	do	Machine-finished book.
	6.17	Ground wood, sulphite, and soda	News and book.
	9.82	do	Wrapping and toilet tissue.
	9.83	do	Book Nos. 2 and 3.
	7.22	Ground wood, sulphite, and all other wood fiber.	News, catalogue, poster, and specialties.
	10.30	Wood for pulp, soda	Bond and ledger.
	3.10	Ground wood	News, bu manila, bu fiber, and No. 1 fiber.
	10.58	Ground wood and sulphite	Wrapping paper.
	7.62	do	All grades fiber and manila papers.
	5.25	do	Manila, fiber, and pattern papers.
	4.42	do	News paper.
	3.88	do	Do.
			Paper only.
Other States	5.11	Straw, waste paper	Wrapping, building paper.
	6.23	Ground wood and sulphite	News and hanging.
	5.47	do	News.
	4.04	Straw	Straw board.
	5.26	All other materials	Paper box board.
	5.80	Straw	Strawboard.
	7.30	do	Do.
			Pulp and paper.
	8.35	Sulphite	Wrapping.
	18.19	Ground wood, sulphite, and soda	R. R. writings, book and cheap bonds.
	6.65	Wood for pulp; all other materials	Butchers' manila, fibers, specialties, colors.

[a] Evidently includes salaries.

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COST OF MANUFACTURE—J. R. BOOTH.

J. R. BOOTH, MANUFACTURER,
Ottawa, Ontario, January 29, 1909.

JAMES R. MANN, Esq.,
Washington, D. C.

DEAR SIR: I inclose you herewith cost statements that it has occurred to me might interest you. They represent the cost of my paper, pulp, and sulphite during 1908.

Yours, truly,

J. R. BOOTH.

Cost of manufacturing sulphite in the mill of J. R. Booth at Ottawa, Ontario.

FROM JULY 7, 1908, TO NOVEMBER 30, 1908.

	July.	August.	September.	October.	November.	Total.	Average monthly cost.
Wood	$17.65	$13.98	$15.28	$13.07	$15.79	$75.77	$15.16
Sulphur	4.19	3.40	2.96	2.62	2.59	15.76	3.15
Lime	1.20	.88	.74	.67	.64	4.13	.82
Fuel	.....	.29	.33	.83	2.90	4.35	.87
Light and power	1.65	.66	.86	1.13	.72	5.02	1.01
Felts	.45	.07	.14	.18	.12	.96	.19
Screen plates	.....	.....	.....	.....	.03	.03	.01
Labor	9.86	5.50	6.92	9.07	5.73	37.08	7.41
Oil	.19	.03	.01	.02	.01	.26	.05
Repairs	.20	.14	.27	.72	.25	1.58	.32
Renewals	.57	.81	.47	.60	.54	2.99	.60
Taxes and insurance	.05	.02	.02	.03	.02	.14	.03
Sundries	.56	.20	.16	.24	.08	1.24	.24
	36.57	25.98	28.16	29.18	29.42	149.31	29.86

Cost of manufacturing wood pulp in the mill of J. R. Booth, at Ottawa, Ontario.

FROM JANUARY 1, 1908, TO AUGUST 31, 1908.

	January.	February.	March.	April.	May.	June.	July.	August.	Total.	Average monthly cost.
Wood	$5.75	$7.15	$7.15	$7.15	$7.66	$7.66	$7.66	$7.66	$57.84	$7.23
Felts	.06	.....	.22	.04	.05	.05	.03	.06	.49	.06
Stones	.....	.....	.....	.....	.....	.....	.19	.24	.43	.05
Repairs	.13	.20	.24	.18	.06	.28	.24	.32	1.65	.20
Renewals	.12	.61	.....	.51	.25	.07	.06	.55	2.17	.27
Labor	2.20	5.66	5.76	2.24	2.34	2.50	2.52	3.00	26.32	3.29
Taxes and insurance	.40	1.22	.92	.44	.37	.35	.33	.41	4.44	.55
Sundries	.04	.28	.22	.06	.05	.08	.08	.47	1.28	.16
Superintendence	.08	.22	.16	.08	.07	.06	.06	.07	.80	.10
	8.78	15.34	14.67	10.80	10.85	11.03	11.17	12.78	95.44	11.94
Less power supplied	.....	1.37	1.04	.49	.41	.39	.37	.47	4.54	.57
	8.78	13.97	13.53	10.31	10.44	10.64	10.80	12.31	90.88	11.37

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Cost of manufacturing news-print paper in the mill of J. R. Booth, Ottawa, Ontario.

FROM DECEMBER 1, 1907, TO NOVEMBER 30, 1908.

	1907.	1908.												
	December.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	Total.	Average monthly cost.
Ground wood	$9.60	$9.10	$9.80	$13.26	$10.10	$10.22	$10.40	$10.03	$9.45	$10.82	$13.44	$15.75	$132.00	$11.00
Sulphite	9.01	9.80	10.90	12.42	11.35	10.82	9.88	9.54	10.11	11.98	9.50	10.14	125.45	10.45
Clay	.39	.36	.35	.20	.21	.25	.40	.33	.34	.34	.29	.29	3.75	.31
Size	.07	.10	.18	.10	.11	.11	.10	.12	.17	.16	.13	.12	1.47	.12
Alum	.46	.46	.42	.22	.24	.28	.43	.43	.38	.42	.36	.38	4.48	.38
Color	.08	.09	.08	.08	.08	.08	.09	.09	.09	.12	.09	.13	1.10	.09
Felts, etc	.94	1.16	1.12	.69	.87	1.15	1.02	1.09	.95	.80	.60	.98	11.37	.95
Wires	.46	.29	.42	.28	.28	.45	.28	.23	.51	.42	.53	.28	4.43	.37
Fuel	2.06	3.72	3.63	3.80	3.00	.78	.01	.....	.....	.....	.17	1.71	18.88	1.57
Finishing, etc	2.08	1.90	2.27	1.88	1.54	2.08	2.30	1.73	1.79	1.60	2.22	1.92	23.31	1.94
Labor	4.18	4.07	5.08	4.36	4.26	4.09	4.10	3.79	3.44	3.90	5.11	4.27	50.65	4.22
Repair labor	.42	.41	.64	.22	.41	.09	.14	.23	.18	.30	.26	.20	3.50	.30
Oil	.18	.20	.28	.21	.14	.14	.18	.17	.14	.16	.25	.14	2.19	.18
Repair material	.28	.41	.38	.25	.41	.13	.20	.18	.20	.25	.47	.16	3.32	.27
Renewals	.42	.45	.24	.28	.45	.58	.54	.29	.71	.71	.74	.43	5.84	.49
Office expense	.24	.25	.36	.25	.26	.24	.31	.30	.28	.34	.43	.30	3.56	.30
Cost selling	.35	.22	.37	.30	.44	.28	.20	.24	.23	.24	.17	.22	3.26	.27
Sundries	.44	.18	.23	.22	.22	.28	.32	.41	.39	.29	.57	.30	3.85	.32
Taxes and insurance	.18	.19	.28	.20	.19	.19	.20	.20	.18	.22	.28	.20	2.51	.37
Light and power	.....	.....	.58	.41	.40	.40	.42	.41	.38	.47	.59	.41	4.47	.21
	31.84	33.36	37.61	39.63	34.90	32.64	31.52	29.81	29.95	33.54	36.20	38.33	409.39	34.11

MATERIALS USED IN 1908.

The CHAIRMAN. In order to obtain as much information as possible concerning kinds and amount of materials used in pulp and paper making, and the different products derived therefrom, a schedule of questions was sent out to about 750 manufacturers. It was requested that, if accurate records had not been retained, estimates be forwarded to the committee. The figures, then, consist of estimated consumption where actual consumption could not be given.

In all, about 370 responses were received. About 70 companies were unable to answer the questions, as they are purchasers and not manufacturers of pulp. Returns from 300 companies have been tabulated by the committee, a few appearing in both tables, since they use both wood, rags, and waste paper.

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WOOD USED FOR PULP.

Estimate for 1908 from reports of 128 establishments submitted to the select committee.

	United States.		Maine.		Massachusetts.		Michigan.		Minnesota.		New Hampshire.		New York.	
Number of establishments	128		12		3		7		3		5		45	
	Total cords.	Per cent.	Cords.	Per cent.	Cords.	Per cent.	Cords.	Per cent.	Cords.	Per cent.	Cords.	Per cent.	Cords.	Per cent.
Total	2,076,971	100.0	408,179	19.7	91,702	4.4	97,007	4.7	212,795	10.3	44,727	2.2	375,979	18.1
Spruce	1,046,681	50.4	286,313	27.4	78,479	7.5	28,623	2.7	212,795	20.3	34,554	3.3	191,101	18.3
Spruce slabs and edgings	38,812	1.9	4,000	10.3	8,322	21.5	.....	.....	.....	.....	8,000	20.6	15,490	39.9
Hemlock	393,124	18.9	5,113	1.3	200	.1	36,319	9.3	.....	.....	.....	.....	27,246	6.9
Hemlock slabs and edgings	97,789	4.7	.....	.....	.....	.....	21,115	21.6	.....	.....	.....	.....	10,850	11.1
Poplar	228,500	11.0	101,362	44.4	3,771	1.6	245	.1	.....	.....	2,078	.9	53,271	23.3
Balsam	54,097	2.6	9,867	18.2	930	1.7	9,272	17.1	.....	.....	95	.2	17,529	32.4
Cottonwood	16,955	.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
White fir	14,505	.7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Pine	57,131	2.7	1,524	2.6	.....	.....	471	.8	.....	.....	.....	.....	18,499	14.9
Other soft woods	1,534	.1	.....	.....	.....	.....	[b] 962	62.7	.....	.....	.....	.....	.....	.....
Hard woods (total)[a]	127,843	6.2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	51,993	40.7

[a] Of the hard woods, New York reported hard maple 17,859 cords, and basswood, cucumber, and yellow poplar 34,134 cords; North Carolina, chestnut 29,114 cords; Pennsylvania, hard maple 14,991 cords, beech 12,675, birch 6,800, cherry 1,200, gum 5,820, buttonwood 20, butternut 1,060, elm 500, willow 600, basswood 2,100, and cucumber 970 cords.

[b] Tamarack.

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WOOD USED FOR PULP—Continued.

Estimates for 1908 from reports of 128 establishments submitted to the select committee—Continued.

	North Carolina.		Ohio.		Oregon.		Pennsylvania.		Vermont.		West Virginia.		Wisconsin.		Other States.[c]	
Number of establishments	2.		2.		2.		9.		2.		3.		28.		5.	
	Cords.	Per cent.	Cords.	Per cent.	Cords.	Per cent.	Cords.	Per cent.	Cords.	Per cent.	Cords.	Per cent.	Cords.	Per cent.	Cords.	Per cent.
Total	71,354	3.4	25,228	1.2	63,206	3.0	213,906	10.3	9,271	0.4	41,914	2.0	376,479	18.1	45,224	2.2
Spruce	7,542	.7	1,500	.1	26,635	2.5	30,388	2.9	9,149	.9	17,614	1.7	119,863	11.5	2,125	.2
Spruce slabs and edgings											3,000	7.7				
Hemlock	25,201	6.4	2,500	.6	15,350	3.9	31,563	8.0			15,000	3.8	234,632	59.7		
Hemlock slabs and edgings			15,000	15.3			44,689	45.7			5,000	5.1	1,135	1.2		
Poplar	6,029	2.6	[a] 5,728	2.5			24,429	10.7	122	.1	1,300	.6	7,245	3.2	22,920	10.0
Balsam							4,859	9.0					11,545	21.4		
Cottonwood					9,896	58.4									7,069	41.6
White fir					11,325	78.1									[b] 3,180	21.9
Pine	3,468	6.1	500	.9			31,242	54.7					1,487	2.6	9,940	17.4
Other soft woods													[c] 572	37.3		
Hard woods (total) [d]	29,114	22.8					46,736	36.5								

[a] Includes cottonwood, linden, and buckeye.
[b] Red fir.
[c] Includes California, South Carolina, Texas, Virginia, and Washington, with 1 establishment each.
[d] Of the hard woods, New York reported hard maple 17,859 cords, and basswood, cucumber, and yellow poplar 34,134 cords; North Carolina, chestnut 29,114 cords; Pennsylvania, hard maple 14,991 cords, beech 12,675, birch 6,800; cherry 1,200, gum 5,820, buttonwood 20, butternut 1,060, elm 500, willow 600, basswood 2,200, and cucumber 970 cords.

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WOOD USED FOR PULP—Continued.

Estimate for 1908 from reports of 16 Canadian establishments submitted to the select committee.

	Cords.	*Per cent.*
Total	289,634	100
Spruce	266,284	91.9
Spruce slabs and edgings	1,809	0.6
Hemlock	809	0.3
Poplar	1,575	0.5
Balsam	17,200	6.1
Pine (jack)	1,500	0.5
Yellow poplar	75	.....
Basswood	402	0.1

WOODS USED FOR GROUND WOOD.

Of 89 mills making ground wood, in reply to a question as to whether the ground wood was made from any other wood than spruce (with a slight admixture of balsam), 30 answered "yes."

The woods used were hemlock, poplar, cottonwood, fir, pine, jack pine, and tamarack. In general, however, they were used, in small proportions, together with spruce.

WOODS USED FOR SULPHITE FIBER.

Of 46 mills making sulphite fiber, in reply to a question as to whether the sulphite was made from any other wood than spruce or hemlock, 14 answered "yes."

The woods used were balsam, cottonwood, fir, pine, cedar, and tamarack. In these cases, however, spruce or hemlock composed the largest proportion of the fiber.

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RAGS, WASTE PAPER, AND OTHER MATERIALS USED.

Estimate of rags, waste paper, and other materials used in 1908 in the manufacture of paper, as reported by 168 establishments.

	United States.		Connecticut.		Illinois.		Indiana.		Maine.		Massachusetts.		Michigan.	
Number of establishments	168.		20.		6.		9.		3.		25.		8.	
	Total pounds.	Per cent.	Pounds.	Per cent.	Pounds.	Per cent.	Pounds.	Per cent.	Pounds.	Per cent.	Pounds.	Per cent.	Pounds.	Per cent.
Total	1,327,774,550	100.0	53,703,797	4.0	241,380,229	18.2	167,182,000	12.6	9,692,664	.7	174,133,750	13.1	64,788,636	4.9
Linen rags	7,234,278	.6	308,389	4.3					46,329	.6	4,717,771	65.2	796,000	11.0
Cotton rags	240,892,539	18.1	2,561,342	1.1	10,995,000	4.6	2,000,000	.8	1,281,722	.5	85,494,264	35.5	9,830,953	4.1
Product			Bond				Felt				Bond, book, writing, board.		Bond, book, writing.	
Woolen rags	60,465,136	4.6	16,324	.1			3,600,000	5.9			1,864,645	3.1		
Product							Felt				Felt			
Straw	309,772,000	23.3			106,526,000	34.4	150,392,000	48.5					2,036,000	.6
Kinds					Oat, wheat, rye.		Wheat, rye, oat.						Rye, oat, wheat.	
Product					Board, wrapping.		Board, wrapping.						Board	
Waste paper	425,818,069	32.1	37,804,312	8.9	81,078,489	19.1	9,538,000	2.2	5,954,613	1.4	34,659,567	8.1	32,005,653	7.5
Product			Board, building paper.		Board, wrapping.		Board, wrapping.		Board		Book, board, wrapping, writing.		Book, board, writing.	
Old books and magazines.	54,708,949	4.1									17,971,774	32.8	12,620,000	23.1
Product													Book, board, building.	
Newspapers	103,105,057	7.8	3,344,414	3.2	42,780,740	41.5	1,652,000	1.6			14,712,319	14.3		
Product			Board, wrapping.		Board, wrapping.		Board				Board, carpet lining.			
Old papers, n. e. s.	65,638,126	4.9	4,890,781	7.4							14,111,948	21.5	7,500,000	11.4
Product			Board, book, wrapping, writing.								Board, carpet lining.		Writing, board.	
Leather	9,251,462	.7							200,000	2.2	451,462	4.9		
Other materials	50,888,934	3.8	4,778,235	9.4					2,210,000	4.4	150,000	.3		
Kinds			Hemp, rope, jute stock.						Flax waste, old hemp twine.					

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RAGS, WASTE PAPER, AND OTHER MATERIALS USED—Continued.

Estimate of rags, waste paper, and other materials used in 1908 in the manufacture of paper, as reported by 168 establishments—Continued.

	New Jersey.		New Hampshire.		New York.		Ohio.		Pennsylvania.		Wisconsin.		Other states.a	
Number of establishments	7.		6.		24.		16.		19.		11.		14.	
	Pounds.	Per cent.	Pounds.	Per cent.	Pounds.	Per cent.	Pounds.	Per cent.	Pounds.	Per cent.	Pounds.	Per cent.	Pounds.	Per cent.
Total	30,872,114	2.3	18,948,759	1.4	103,200,275	7.8	132,779,326	10.0	193,459,784	14.6	62,610,584	4.7	75,022,632	5.7
Linen rags			74,697	1.0			300,000	4.1	842,750	11.7	108,342	1.5	40,000	.6
Cotton rags	20,476,276	8.5	514,000	.2	10,042,000	4.2	22,537,000	9.3	37,642,744	15.6	24,850,629	10.3	12,666,000	5.3
Product	Board, felt				Felts		Blotting, felt, Roofing, writing.		Book, parchment.		Book, bond, writing.		Blotting, felt, wrapping.	
Woolen rags					20,061,527	33.2	15,300,000	25.3	19,302,640	31.9			320,000	.5
Product					Felts		Roofing							
Straw					5,550,000	1.8	9,842,000	3.2	500,000	.2			34,926,000	11.3
Kinds					Rye		Wheat, oat		Rye, oat				Wheat, rye, oat.	
Product					Wrapping				Wrapping				Board, wrapping.	
Waste paper	8,286,161	1.9	6,674,888	1.6	34,939,792	8.2	44,961,834	10.6	98,700,098	23.2	14,550,000	3.4	16,664,632	3.9
Product	Board, felt		Board, tissue		Board, news, tissue, wrapping.		Board, cover, felt, writing.		Board, hanging, wrapping.		Book, news, wrapping.		Board, felt, news, wrapping.	
Old books and magazines.					720,131	1.3	120,000	.2	1,200,000	2.2	21,277,044	38.9	800,000	1.5
Product					Board				Board		Book			
Newspapers			5,000,000	4.9	8,393,569	8.1	20,745,097	20.1	3,816,349	3.7	1,660,569	1.6	1,000,000	1.0
Product			Board		Board, hanging, wrapping.		Board		Board, hanging, wrapping.		Board, wrapping.			
Old papers n. e. s.			6,000	0.0	516,272	.8	841,122	1.3	30,166,003	46.0			7,606,000	11.6
Product					Board, hanging, sacks.		Wrapping		Board				Board, wrapping, specialties.	
Leather	2,000,000	21.6	5,000,000	54.0	1,600,000	17.3								
Other materials	109,677	.2	1,679,174	3.3	21,376,984	42.0	18,131,604	35.6	1,289,200	2.5	164,000	.3	1,000,000	2.0
Kinds	Hemp		Burlap, hemp and jute twines, rope.		Old rope, hemp, jute bagging.		Rope, leather, bagging, flax waste, strings.		Rope, bagging.				Burlap, jute	

a Includes Delaware, District of Columbia, Maryland, Missouri, Oregon, South Carolina, Texas, and Vermont, with 1 establishment each; Iowa, Kansas, and Virginia, with 2 establishments each.

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